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**CENTRAL SUPPORT ZONE
INVESTIGATION REPORT**

**ENVIRO-CHEM SUPERFUND SITE
ZIONSVILLE, INDIANA**

**PREPARED FOR
ENVIRONMENTAL CONSERVATION AND
CHEMICAL CORPORATION TRUST**

**PREPARED BY
DOW ENVIRONMENTAL INC.
PITTSBURGH, PENNSYLVANIA**

DEI PROJECT NUMBER 2455.005

JANUARY 1996

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1.0 INTRODUCTION

This report presents the results of the Central Support Zone Investigation (CSZI) conducted at the Enviro-Chem Superfund Site in Zionsville, Indiana, by Dow Environmental Inc. (DEI). The investigation was performed from July 10 to July 14, 1995. The site location is shown on Figure 1.1.

1.1 Objective

The objective of the CSZI was to assess the horizontal and vertical (to 10 feet) extent of volatile organic compounds (VOCs) in soil in the area of the Central Support Zone.

1.2 Sampling and Quality Assurance Plans

The CSZI Field Sampling Plan (FSP), February, 1995, and subsequent letter responses to U.S. EPA comments on the plan, dated April 14, 1995 and June 13, 1995, comprise the sampling approach and methods for the CSZI.

The CSZI Quality Assurance Project Plan, March 1995, and subsequent letter responses to U.S. EPA comments on the plan, dated April 14, 1995, comprise the sampling and analyses quality assurance procedures for the CSZI.

Any variations from these plans are noted in this report.

2.0 SITE INVESTIGATION ACTIVITIES

The following sections describe the site activities undertaken during the CSZI. Sampling and analyses procedures and methodology are described in the sampling and quality assurance plans as noted in Section 1.2.

2.1 Soil Sample Locations

The Central Support Zone area was investigated on a primary sampling grid of 50 foot spacing over a 100 by 150 feet area. The first line of samples (easternmost grid line) was situated next to the site remedial boundary, and the remaining grid extended westerly into the Central Support Zone area.

The primary sampling grid of 12 test borings was located by a field survey conducted by Schneider Engineering Corporation of Indianapolis, Indiana. The primary grid sample locations were referenced to the Indiana State Plan Coordinate System. These 12 test borings were identified as B1 through B12 and were drilled at or within a one foot radius of the locations proposed in the Field Sampling Plan. Four additional test borings were drilled at Tier 1 locations as a result of the primary grid sample analyses as directed by the Field Sampling Plan. These Tier 1 test borings were identified as B13, B14, B15 and B16 and they were located by triangulation tape measurements performed by the DEI field crew. The test boring numbers and grid coordinates are listed on Table 2-1 of this report. Boring locations are shown on Figure 2-1.

Each soil boring was drilled to a depth of ten feet below ground surface (BGS). The one foot thick aggregate layer overlying ground surface within the Support Zone was not sampled or considered as part of the boring log.

Soil samples were taken at two-foot intervals within each boring and field VOC headspace analyses was performed on each sample. Two samples from each test boring were sent offsite for laboratory VOC analyses in accordance with the Field Sampling Plan. The sample depth intervals are noted as A (zero to two feet), B (two to four feet), C (four to six feet), D (six to eight feet), and E (eight to ten feet).

2.2 Soil Sampling Methods

Sixteen soil borings were drilled with a truck-mounted geotechnical drilling rig (Mobile Drill B-61) capable of hollow-stem augering techniques (HSA). DEI retained ATEC Associates, Inc. (ATEC) of Indianapolis, Indiana, to provide drilling services for the project. Drilling operations were supervised by a DEI hydrogeologist or civil engineer. Each borehole was advanced to ten feet below ground surface. Representative soil samples were obtained at two-foot intervals with clean split spoon samplers in accordance with ASTM Standard Method D-1586 (Penetration Test and Split-Barrel Sampling of Soils). Each soil sample was logged and field classified according to the Unified Soil Classification System. A log for each boring is included in Appendix A.

Representative soil samples were taken from each spoon sample for screening by field VOC headspace analyses (see Section 2.3). Representative soil samples were also taken from each spoon sample, when recovery permitted, for offsite laboratory VOC analyses. These samples were temporarily stored in chilled coolers in a secured area until the field screening analyses was completed. The samples for offsite analyses were selected using the following criteria:

1. One sample from the zero to five feet interval in each soil boring.
2. One sample from the five to ten feet interval in each soil boring.
3. Each offsite sample was selected from the sample depth having the highest VOC headspace result in the zero to five feet and five to ten feet depth intervals, unless samples were selected by criteria number four.
4. Ten percent of the offsite samples were selected from the sample interval with the lowest or non-detect VOC headspace result within the soil boring.

Quality control samples were taken consistent with the requirements of the CSZI QAPP. The frequency of the QA/QC samples was as follows: (1) one sample was designated for MS/MSD analysis for every 20 or fewer samples; (2) one duplicate was collected for every ten or fewer soil samples; and, (3) equipment rinsate blanks (distilled water) were taken daily.

2.2.1 Decontamination

The drilling rig and all downhole equipment were decontaminated prior to drilling, between boring locations, and before demobilization from the site with a high-pressure, hot water washer. The procedure for cleaning split spoon samplers included a soapy water wash, potable water rinse, and a final deionized water rinse step in accordance with the Field Sampling Plan.

2.2.2 Investigation - Generated Wastes

Decontamination fluids, drill cuttings and miscellaneous solid wastes were collected and placed in labeled DOT 55-gallon drums. The drums were temporarily stored onsite pending subsequent removal by DEI under a separate drummed waste removal action.

2.3 Soil Analytical Methods

All soil samples were analyzed by field VOC screening and 40 percent of the samples were sent offsite for VOC analyses at a CLP-certified laboratory. Additional samples were taken for analytical quality control in accordance with the CSZI QAPP.

2.3.1 VOC Headspace Analyses

An approximately four-ounce representative soil sample was taken from each split spoon sample for field screening by VOC headspace analyses. The soil was placed in a clean, one-quart glass jar and immediately covered with aluminum foil and secured with packing tape. The field geologist used a decontaminated stainless steel trowel and wore clean latex gloves when transferring samples from the split spoon into the headspace containers.

The samples were maintained at room temperature (approximately 70°F) for a minimum of 15 minutes prior to analysis to allow adequate time for equilibrium of any soil gas that may be contained in the jar. After reaching equilibrium, the soil gas samples were analyzed by a photo ionization detector (PID) with a 10.2 electron volt ionization lamp. The probe from the PID was inserted through the foil cover and a peak reading of the resultant PID response was recorded.

After all readings were completed for a sample location, the glass jar was emptied of the remaining sample and decontaminated as per the Field Sampling Plan.

2.3.2 Laboratory VOC Analyses

Soil sample were selected for offsite laboratory analyses based on the field screening results from the soil boring samples. The screening criteria are described in Section 2.2. The VOC target compound list was analyzed for CLP Method OLM 03.0. Ceimic Corporation Laboratories, Narranganset, Rhode Island, performed the analyses.

All offsite VOC analyses were performed on a quick turnaround schedule of 24 hours or less, after lab receipt of the samples. The quick turnaround analyses was considered preliminary, pending final quantification and data validation. Quick turnaround analyses was necessary to determine whether any sampling beyond the primary soil boring grid was needed, and to enable any such sampling to be conducted without excessive delays in field activities.

2.3.2.1 Soil Sampling Criteria for Laboratory Analyses

Initially, two soil samples were selected for offsite lab analyses from each primary grid soil boring. See Section 2.1 for a description of the soil sample locations. The criteria for expansion of the primary sampling grid was based on the preliminary analyses for the perimeter boring samples of the grid. These soil borings included B1, B4, B7, B10, and B11.

The criteria for each perimeter grid boring was the highest VOC concentration measured for each parameter for the two samples taken within each boring. These parameter concentrations were compared to a target concentration based on 125 percent of the values set forth in Table 3-1 of Exhibit A to the Consent Decree in accordance with footnote 6 to Table 3-1. See Report Table 2-2 for the target soil concentrations. If the highest concentration for any parameter within a perimeter grid sample exceeded the target concentration, then Tier 1 samples were taken. This criteria resulted in four Tier 1 soil borings being drilled at locations adjacent to perimeter borings B7, B10 and B11. For the southwest grid corner point, B10, Tier 1 samples were taken in both west and south directions. No Tier 2 samples were taken beyond the Tier 1 sample locations.

3.0 INVESTIGATION RESULTS

3.1 Subsurface Lithology

Subsurface soil conditions within the Central Support Zone Investigation area have been interpreted from the 16 soil borings drilled within the area. The general sequence of subsurface materials encountered with depth is as follows:

- Medium gravel aggregate fill (pavement in support zone area)
Zero to one and one-half (0 to 1½) foot thick (\pm six inches) except in soil borings B1, B2, B3, B6, B9, and B12 which were beyond the limits of the aggregate pavement. Soil boring B2 encountered a six-inch thick concrete pad at three inches BGS.
- Silty clay (upper glacial till)
One and one-half to ten (1½ to 10) foot thick (except in debris fill areas as described below) gray to brown silty clay. Within this zone are numerous thin (one to six-inch) clayey sand, and sand and gravel lenses generally at depths of seven to ten feet BGS. These lenses were generally wet to saturated.
- Debris Fill (construction debris: bricks, concrete, and sand mixed with soil)
The debris fill interval varies from zero to four (0 to 4) feet BGS in soil borings B14 and B16 to zero to nine and one-half (0 to 9½) feet in B15. Debris fill was not encountered in any other CSZI soil borings.

Soil boring logs are contained in Appendix A.

3.2 Headspace Analytical Results

VOC screening was performed on soil boring samples by headspace analyses (see Section 2.3.1). Headspace readings were obtained for all soil samples, except in the case when insufficient sample was recovered in the split spoon.

VOC headspace analytical results are summarized on Report Table 3-1. VOC headspace isocontours have been plotted at each 2-foot sample interval using Surfer Version 6.0. Color plots and mesh diagrams for the PID results are contained in the Figures section of this report. Headspace analytical logs, including the rationale for selecting the soil sample for offsite lab analyses, are contained in Appendix B.

3.3 Laboratory Analytical Results

3.3.1 Soils

Soil samples were shipped offsite for laboratory VOC analyses based on the results of field VOC screening. A summary of sample numbers and sample information is contained on Report Table 3-2. Soil VOC analytical results are contained in Report Table 3-3. These results represent the final laboratory data package with validation qualifiers as added by DEI. See Section 3.3.4 for data validation information.

Concentration isocontours have been plotted at 2-foot depth intervals for VOC compounds, 1,1 dichloroethane, trichloroethylene, and tetrachloroethylene. These compounds were selected since they are three of the VOCs most often detected onsite and they are representative of VOC distribution in soils.

For plotting purposes, all samples reported with a "U" are considered not detected. For diluted samples, use of the reported detection limit in graphical plots would unnecessarily bias the results to higher concentrations and would create "false positive" hits for compounds with low cleanup objectives. Analytical results reported as not detected were eliminated from the data set if the detection limits were above the cleanup objective. In the case where the reported detection limit was less than the cleanup objective, one-half of the detection limit was used. The color plots for the three VOC compounds are contained in the Figures section of this report. Tables showing the laboratory data and the values used for graphical plotting are contained with the figures.

3.3.2 QA/QC Samples

Quality assurance/quality control samples were taken in accordance with the QAPP. These included the following:

1. Soil sample field duplicates (DUP).
2. Field blanks (distilled water).
3. Equipment rinsate blank (distilled water).

The field duplicate results for soils are reported on Report Table 3-3. Aqueous blank results are reported separately on Report Table 3-4.

3.3.3 Data Validation

All analytical data were reviewed by DEI according to the U.S. EPA Contract Laboratory Program's National Functional Guidelines for Organic Data Review (February 1994) and with reference to CLP methods and requirements. The results are presented in the Data Validation Reports contained in Appendix C.

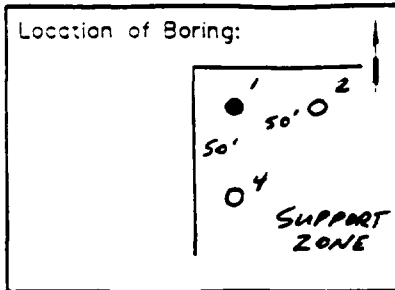
APPENDIX

APPENDIX A
SOIL BORING LOGS



Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1PROJECT: ENVIRO-CHEM CS21 (DEI 2455.005)

Water Depth: _____
 Date: _____
 Time: _____
 Hole Depth: _____
 Casing Depth: _____

Boring No. 1

Feature: _____

Coordinates: N _____

E _____

Ground Elev.: _____

Casing Elev.: _____

Total Depth: 10.0' BSG

Bottom Elev.: _____

Date Started: 7/11/95 Time: 17:00Hole/Casing Size(s): 8 in / NADate Complete: 7/11 Time: 17:35Drilling Method(s): HSA (3 3/8" ID)
MOBIL DRILL B-61Sample Dimensions: 2 in x 24 in Hammer Weight/Drop: 140 / 30Surface Conditions: VEGETATED SOIL

SOIL DESCRIPTION		REMARKS
SLTY CLY: M. BRN. DRY W/ ABNT. ROOTS + 5-10' F-BRN. MNR. SAND		NO STN/ODOR DRY
AS ABV:		DRY NO STN/ODOR
GRAY: GRAY. DRY 1/2 in. dia. ANG. MID. W/ DRY SLTY CLY.		PR. REC. / ADV. SPT 5X FROM 4-6' NO STN/ODOR
SLTY CLY: M. BRN. MOIST SFT. MED. PLAS. W/ WET CLY EY SAND FROM 7.1'-7.7'		NO STN/ODOR MOIST
AS ABV: TO 9.4' GRDE. TO BRN. WET F-GRAY + M-C SAND MIX. FROM 9.4-10.0		NO STN/ODOR MOIST- WET

BTH = 10.0' BSG

HEAD SPACE ANALYSIS

PID (ppm)

1A = 1.5 *

B = 0.0

C = 0.2

D = 0.0

E = 0.0 *

* = 126 Samples

Date: 7/11/95Logged By: P. GELHAUSEN Chkd. By: _____Drilling Contractor: ATEC

SOIL BORING LOG

PAGE 1 OF 1

PROJECT: ENVIRO-CHEM (CS21-DE1 2455.005)

Water Depth: _____
Date: _____
Time: _____
Hole Depth: _____
Casing Depth: _____

Boring No. 2

Feature:

Coordinates: N

உ

Drilling Method(s): HSA (3 3/8 in ID) Ground Elev.: _____

MOBIL DRILL B-61

Casing Elev.: _____

Date Started: 7/12 Time: 08:30

Hole/Casing Size(s): 8 in / NA

Total Depth: 10.5' BSG

Date Completed: 7/12 Time: 09:30

Bottom Elev.:

Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classifi- cation Field Determination	Graphic Log	Sampling Method(s):	
									Surface Conditions:	TNIN SOIL OVER CONCRETE PAD
									Sample Dimensions:	2x24 IN. Hammer Weight/Drop: 140/30
									Silting Method(s):	SPT
									SOIL DESCRIPTION	REMARKS
2	/	A	4 26 11	18	13		CL		CONCRETE PAD (UPPER 6 IN.) LOWER 7 IN. MED. BRN. GRAY. CLY.	BLK. STN 6-13 IN NO ODDOR DRY - SL MOIST
4	/	B	11 11 13 12	24	12		CL		SILTY CLAY: YEL-BRN. W/ ORNG. MOTT. + MINR. F-GRAV. MED. DENSE	NO STN / ODDOR DRY
6	/	C	6 12 14 12	24	12		CL		SILTY CLAY: AS ABV.	NO STN / ODDOR MOIST
8	/	D	6 6 6 6	24	18		CL SM		SILTY CLAY: DRK. BRN. PLAS. MED. STIFF W/ MINR. F-GRAV. WET CLAYEY SAND LENSES 6.7-7.0 AND 8.0-8.3	NO STN / ODDOR V. MOIST - WET
10										
									BTH = 10.5' BSG	HEAD SPACE ANALYSIS: PID(ppm) ZA = 113.7 * B : 49.4 C : 22.5 D : 2.2 E : 2.5 *
									* = lab samples	

Date: 7/12/95

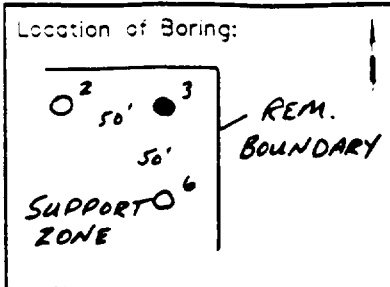
Logged By: D. GELHAUSEN Chkd. By:

Drilling Contractor: **ATEC**



Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1PROJECT: ENVIRO-CHEM CS21 (DEI 2455.005)

Water Depth: _____
Date: _____
Time: _____
Hole Depth: _____
Casing Depth: _____

Boring No. 3

Feature: _____

Coordinates: N _____

E _____

Ground Elev.: _____

Casing Elev.: _____

Total Depth: 10.0' BSG

Bottom Elev.: _____

Date Started: 7/12 Time: 09:40Hole/Casing Size(s): 8 IN / NADate Complete: 7/12 Time: 10:05Sampling Method(s): SPTSample Dimensions: 2x24 IN Hammer Weight/Drop: 140/30Surface Conditions: VEGETATED SOIL

Boring Depth (ft)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classification Field Determination	Graphic Log	SOIL DESCRIPTION	REMARKS
2	A	10	4	24	15	CL			SILTY CLAY: MED. BRN. SOME ORGANIC MAT. NON-PLAS. TR F-GRAV. CRSE SAND	NO STN/ODOR DRY
4	B	11	8	24	16	CL			SILTY CLAY: AS ABV.	BLK STN NO ODOR SL. MOIST
6	C	12	3	24	13	CL			SILTY CLAY: AS ABV. BUT SOFTER	WET STN/ODOR (GLUE-LIKE) FROM 5.6-6.0
8	D	13	2	24	12	CL			SILTY CLAY: BRN-GRN (STN) W/ LESS F-GRAV THAN ABOVE	STN MOIST-WET DRLR RPT ODOR FROM BOREHOLE *
10	E	14	2	24	12	CL			SILTY CLAY: DK. GRY-GRN. SFT.	BLK STNS. STRONG VOL ODOR V. MOIST-WET
BTH = 10.0' BSG										* PID BH = 88 B2 = 0
										HEAD SPACE ANALYSIS PID (ppm) 3A = 10.6 B = 40.7 C = 700.0 * D = 1267 * E = 658 * = 126 samples

Drilling Contractor: ATEC Logged By: D. GELHAUSEN Chkd. By: 7/12/95



Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1

PROJECT: ENVIRO-CHEM CSZ1 (DE1 2455.006)

Location of Boring:

REM. BOUNDARY

0
SUPPORT

5.

5

1

Water Depth:

Note:

Title:

Hole Depth:

Casing Depth:

Boring No. 4

Feature:

Coordinates: N

三

Drilling Method(s): 115A (3 3/8" ID)

Mobil Drill B-61

Ground Elev.:

Casing Elev.:

Hole/Casing Size(s): 8 in / 7 1/2 in

Total Depth: 12.0' BSC

Date: 7/11
Complete: Time: 11:20

Bottom Elev.:

[illegible]



Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1PROJECT: ENVIRO-CHEM CS21 (DEI 2455.005)

Location of Boring:

O² O³

SUPPORT ZONE 6 REM. BOUNDARY

Water Depth: _____

Date: _____

Time: _____

Hole Depth: _____

Casing Depth: _____

Boring No. 6

Feature: _____

Coordinates: N _____

E _____

Drilling Method(s): HSA(3³/B1D)

MOBIL DRILL B-61

Ground Elev.: _____

Casing Elev.: _____

Date Started: 7/12 Time: 13:56

Hole/Casing Size(s): 8 IN/NA

Total Depth: 10.0' BSG

Date Complete: 7/12 Time: 14:25

Bottom Elev.: _____

Sampling Method(s): SPT

Sample Dimensions: 2x24 W. Hammer Weight/Drop: 140/30

Surface Conditions: Soil/Native Vegetation

Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classification Field Determination	Graphic Log	SOIL DESCRIPTION	REMARKS
2	A	6	9	24	16	CL			SILTY CLAY: MED. BEN. W/ 5-10% F-GRAV, STIFF, SL. PLAS.	NO STN/ODOR DRY
4	B	7	5	24	14	CL			SILTY CLAY: AS ABOVE	BLK STN LOWER 6 IN. W/ VOL ODOR SL. MOIST
6	C	2	2	24	15	CL			SILTY CLAY: AS ABOVE, SFT. PLAS.	BLK. STN LOWER 6 IN W/ODOR MOIST
8	D	4	6	24	24	CL			SILTY CLAY: BRN-DRNG MOD. MED. STIFF, MNR F-GRAV	NO ODOR/STN MOIST
10	E	5	6	24	16	CL SM			SILTY CLAY: UPPER 10 IN. BRN-GRY W/ MNR. F-GRAV. LOWER 6 IN. BRN SILTY SAND V-MOIST TO NET	NO STN/ODOR MOIST-WET
BTH = 10.0' BSG										HEAD SPACE ANALYSIS PID(ppm) 6A = 18.1 B = 33.5 C = 307.0 * D = 10.0 E = 4.6 * * = 1/26 samples

Drilling Contractor: ATEC Logged By: D. Gelhausen Chkd. By: _____ Date: 7/12/95



Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1

PROJECT: ENVIRO-CHEM CS21 (DEI 2455.005)

Location of Boring: REM. BOUNDARY

0' 4

50' 7

SUPPORT ZONE

Water Depth: _____

Date: _____

Time: _____

Hole Depth: _____

Casing Depth: _____

Boring No. 7

Feature: _____

Coordinates: N _____

E _____

Drilling Method(s): HSA (3 3/8 ID)
MOBIL DRILL B-61

Ground Elev.: _____

Casing Elev.: _____

Total Depth: 11.7' BSG

Bottom Elev.: _____

Date Started: 7/11 Time: 11:40

Date Complete: 7/11 Time: 11:54

Hole/Casing Size(s): 8 IN / NA

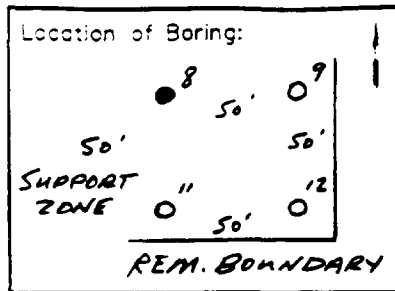
Date: 7/11/95

Logged By: D. GELHAUSEN Chkd. By: _____

Drilling Contractor: ATEC

Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 8in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classifi- cation Field Determination	Graphic Log	Sampling Method(s): <u>SPT</u>	
									Sample Dimensions: <u>2x24 in</u> Hammer Weight/Drop: <u>140/30</u>	
									Surface Conditions: <u>No. 2 GRAV. TO 1.7' BSG</u>	
									SOIL DESCRIPTION	REMARKS
2	A	4	24	18	OL	CL			SILTY CLAY: DK. BRN W/ ORG. MAT. + MIN. F-GRAV. (MAX. DIA. 1/2 IN) - BRKN LS FRAG	NO STN/ODOR SL. MOIST
4	B	15	24	8	NA				ROCK FRAGS: DRY. UNWEATH. LS. W/ YEL-TAN SAND IN TIP OF SPT.	POOR REC. HIT ROCK AT 1' - THIS SAMP. TRASH FROM ABOVE
6	C	16	24	18	CL				SILTY CLAY: DK. BRN. W/ TR. F-GRAV. SFT. SL. PLAS.	BLK STN AND WET IN LOWER 12 IN
8	D	17	24	18	CL				SILTY CLAY: AS ABOVE	NO STN/ODOR MOIST
10	E	18	24	24	SC	CL			CLAYEY SAND: YEL-BRN. F-M GRND. ABOUT 75% SAND. 20% CLAY, 5% SILT IN UPPER 12 IN. LOWER 12 IN SILTY CLAY.	NO STN/ODOR SAT. IN UPPER 12 IN. 8-9' BSG
									BTH = 11.7' BSG SAMPLES LOGGED FROM BASE OF GRAVEL - T.D.	HEAD SPACE ANALYSIS PID (ppm) 7A = 0.2 B = 2.0 C = 0.6 * D = 9.5 E = 12.9 *
										* = 126 samples

SOIL BORING LOG

PAGE 1 OF 1PROJECT: ENVIRO-CHEM CS21 (DEI 2455.005)

Water Depth: _____
 Date: _____
 Time: _____
 Hole Depth: _____
 Casing Depth: _____

Boring No. 8
 Feature: _____
 Coordinates: N _____
 E _____

Drilling Method(s): HSA (3 3/8 ID)
MOBIL DRILL B-61

Ground Elev.: _____

Casing Elev.: _____

Total Depth: 12.0' BSG

Bottom Elev.: _____

Date Started: 7/12 Time: 11:55

Hole/Casing Size(s): 8 IN / NA

Date Complete: 7/12 Time: 12:30

Sampling Method(s): SPTSample Dimensions: 2x24 IN Hammer Weight/Drop: 140/30Surface Conditions: NO. 2 GRAV. TO 2.0' BSG

Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classification Field Determination	Graphic Log	SOIL DESCRIPTION	REMARKS
2	A	5	24	14	CL				SILTY CLAY: DK. BRN W/ WOOD FRAGS, TR F-GRAV MED. STIFF	NO STN/ODOR SL. MOIST
4	B	3	24	14	CL				SILTY CLAY: AS ABOVE	AS ABOVE
6	C	2	24	16	CL GC				SILTY CLAY: YEL.-BRN. SFT IN UPPER 10 IN. W/ SAT. GRAY. CLAY IN LOWER 6 IN.	NO STN/ODOR WATER DRIPPING OFF SPT.
8	D	6	24	24	SM SC				SILTY SAND: BRN M. SAND + SILT IN UPPER 18 IN., SFT. LOWER 6 IN. YEL.-BRN. CLYET SAND, SAT, STIFF	NO STN/ODOR SAT. IN LOWER 6 IN
10	E	6	24	24	SC CL				CLAYEY SAND: UPPER 3 IN. F-M SAND W/ SL PLAS CLY. LOWER 21 IN MED. BRN. SILTY CLAY, MED. STIFF	WET NO STN/ODOR
BTH = 12.0' BSG SAMPLES LOGGED FROM 2.0 - T.D.									HEAD SPACE ANALYSIS PID (ppm) 8A = 5.3 B = 8.3 C = 71.7 * D = 67.0 * E = 25.3 * = 106 samples	

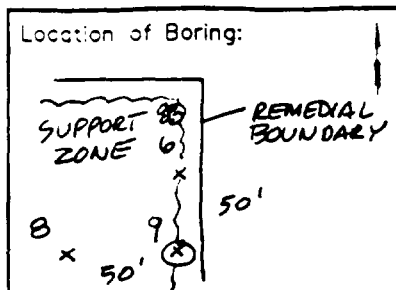
Date: 7/12/95Logged By: D. GELHARSEN Chkd. By:Drilling Contractor: ATEC



SOIL BORING LOG

PAGE 1 OF 1PROJECT: ENVIRO-CHEM CS21

DEI 2455.005



Water Depth: _____
Date: _____
Time: _____
Hole Depth: _____
Casing Depth: _____

Boring No. 9

Feature: _____

Coordinates: N _____

E _____

Ground Elev.: _____

Casing Elev.: _____

Total Depth: _____

Bottom Elev.: _____

Date Started: 7/12 Time: 15:35Hole/Casing Size(s): 8 INDate Complete: 7/12 Time: 15:50Drilling Method(s): HSA MOBILE B61Date: 7/12/95

Chkd. By: _____

Logged By: M. DowiakDrilling Contractor: ATEC

Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classifi- cation Field Determination	Graphic Log	Sampling Method(s): <u>SPT</u>	
									Sample Dimensions: _____ Hammer Weight/Drop: _____	
Surface Conditions: <u>VEGETATED SOIL (OUTSIDE OF SZ AGG.)</u>										
SOIL DESCRIPTION									REMARKS	
32	A	14	4	24	20				BR. SILTY CLAY (UPPER 12 IN). BR SILTY CLAY W/ ANG. MED GRAVEL (LOWER 8 IN).	AROMATIC ODOR SL. MOIST
16 4	B	6	5	24	20				ORANG-BR SILTY CL W/ FINE GRAVEL (BLACK)	NO ODOR OR STAINING MOIST
18 6	C	4	9	24	20				ORANG-BR. SILTY CL W/ FINE GRAVEL (LS) (UPPER 12 IN).	MOIST NO ODOR
20 8	D	12	9	24	22				GRAY SILTY CL W/ FINE GRAVEL (LOWER 8 IN).	
25 10	E	3	7	24	18				GRAY SILTY CL W/FINE GRAVEL (LS) (UPPER 12 IN) BR CLAYEY SAND (2 IN) GRAY SILTY CL. W/FINE GRAVEL (4 IN) BR CLAYEY SAND (4 IN LOWER)	MOIST NO ODOR.
30 35										
40 45									BR. SANDY CL W/FINE GRAVEL AND COARSE SAND (UPPER 6 IN)	WET NO ODOR.
50									GRAY SANDY CL (1-2 IN). IN	BLACK SAND W/FINE GRAVEL AT 9.5' (2 1-2 IN. THICK LENS - NO ODOR)
55									GRAY MED SAND (LOWER 6 IN.)	



Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1

PROJECT: ENVIRO-CHEM CSZ, (DEI 2455.005)

Location of Boring:

07
50' SUPPURT
ZONE

Water Depth: _____

Date: _____

Time: _____

Hole Depth: _____

Casing Depth: _____

Boring No. 10

Feature: _____

Coordinates: N_____

3

Drilling Method(s): HSA (3 3/8" ID)

Ground Elev.: _____

MOBIL DRILL B-61

Casing Elev.: _____

Hole/Casing Size(s): 8 in / NA

Total Depth: _____

Date: 7/11
Completor: Time: 15:10

Bottom Elev.: _____

Sampling Method(s): <u>SDT</u>	
Sample Dimensions: <u>2 x 24 in</u> Hammer Weight/Drop: <u>140/30</u>	
Surface Conditions: <u>N.O. 2 GRAY. TD 2.0' BSG</u>	
SOIL DESCRIPTION	REMARKS
GRAVEL: 1-2 IN. DIA. L.S. DRAG FROM SURFACE FILL LOWER 6 IN. DK. BRN. BLK SILTY CLAY.	POSS. STN/SL ODDER MOIST
GENERALLY SAND: BRN. ABOUT 60% F.F.M SAND, 35% 1/2 DIA GRAV. 5% SILT/CLAY.	BLK STN/FUEL OIL ODDER AT ABOUT 3' IN SAND-WET
GRAY SAND AS ABOVE IN UPPER 6 IN. LOWER 6 IN DK BRN. BLK SILTY CLAY	BLK STN/ODDER WET IN UPPER 6 IN.
SILTY CLAY: YEL-BRN. SET. SL. PLAS., TR F-GRAY. G. SAND.	NO STN/ODDER MOIST
SILTY CLAY: MED. BRN. PLAS. W/ ABOUT 10% F-SAND, 70% CLT 10% SILT, 10% F-GRAY.	SL STN/FUEL ODDER, V. MOIST SILTY GRAY-BLK CLY ON WHEELS.
<p>* SAT GRAY. SAND w/ BLK STN+ODDER FROM 3-4.6' (5-6.6' BSG)</p> <p>HEAD SPACE ANALYSIS PID (ppm)</p> <p>10M = 1.3</p> <p>B = 10.8</p> <p>C = 15.6 *</p> <p>D = 7.6</p> <p>E = 27.3 *</p> <p>* = 126 Samples</p>	



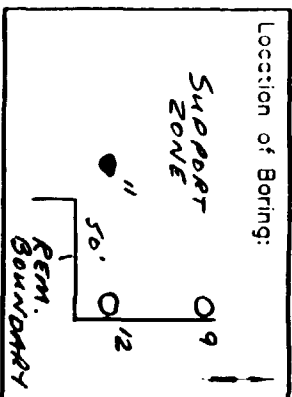
Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1

PROJECT: ENVIRO-CHEM CS21 (DEL 2455.005)

Location of Boring:



Water Depth: _____
Date: _____
Time: _____
Hole Depth: _____
Casing Depth: _____

Boring No. 11
Feature: _____
Coordinates: N _____
E _____

Drilling Method(s): HSA (3 3/8 in ID)

MOBILE DRILL B-61

Hole/Casing Size(s): 8 in. / N/A

Ground Elev.: _____
Casing Elev.: _____
Total Depth: 11.0' BSG

Date Started: 7/11 Time: 15:40
Date Complete: 7/11 Time: 16:10

Bottom Elev.: _____

Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classification Determination	Graphic Log	Sampling Method(s):	Sample Dimensions:	Surface Conditions:	SOIL DESCRIPTION	REMARKS
0		A	8	24	12		CL		SPT	2 x 24 in. Hammer Weight/Drop: 140/30	No. 2 Grav. to 1.0' BSG	SILTY CLAY: DK. BRN. w/ TR. F-GRAN. SL PLAS. RK FROS. AT TOP SPT.	MR. BLK STN NO 000R SL. MOIST
2		B	2	24	12		CL					SILTY CLAY: YEL-BRN MOD. PLAS. SET. MR. MED. SAND TR F-GRAN.	NO STN/000R SL. MOIST
4		C	2	24	14		CL					SILTY CLAY: AS ABOVE	NO STN/000R MOIST
6		D	3	24	24		SM					SILTY CLAY: MED. BRN. SET TO STIFF IN LOWER 12 in. w/ F-M SAND LENSES AT 6.8-7.0' AND 7.5-7.8' (7.8-8.0 x 8.5-10.0)	NO STN/000R WET SAND LENSES
8		E	10	24	24		CL					SANDY GRAVEL: BRN. F-SAND AND SILT w/ 60% F-GRAN. IN LOWER 9 in. LOWER 15 in. GRAY, STRIP DEGREE SILTY CLAY.	NO STN/000R WET
10		F	12	24	24		GM						
12		G	16	24	24		CL						

BTM = 11.0' BSG
SAMPLES LOGGED
FROM BASE OF
GRAVEL FILL TO T.D.

WEND SPACE ANALYSIS
PID(ppm)
11A = 0.6
B = 10.2
C = 50.2 *
D = 61.5 *
E = 14.2

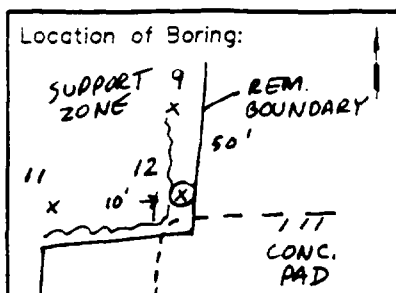
* = 126 samples



SOIL BORING LOG

PAGE 1 OF 1PROJECT: ENVIRO-CHEM CS21

DEI 2455.005



Water Depth: _____
Date: _____
Time: _____
Hole Depth: _____
Casing Depth: _____

Boring No. 12

Feature: _____

Coordinates: N _____

E _____

Ground Elev.: _____

Casing Elev.: _____

Total Depth: _____

Bottom Elev.: _____

Date Started: 7/12 Time: 16:10Hole/Casing Size(s): 8 INDate Complete: 7/12 Time: 16:35Sampling Method(s): SPT

Sample Dimensions: _____ Hammer Weight/Drop: _____

Surface Conditions: VEGETATED SOIL

Boring Depth (ft)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classification Field Determination	Graphic Log	SOIL DESCRIPTION	REMARKS
52	A	10	14	24	16				VEGETATION W/ SILTY SAND (UPPER 6 IN).	NO ODOR DRY
54	B	9	9	24	18				D. BROWN SILTY CL W/ MED GRAVEL (LS) NEAR UPPER SECTION (LOWER 10 IN).	
56	C	8	9	24	22				D. BROWN SILTY CL W/ MED GRAVEL (LS) (UPPER 6 IN)	MOIST NO ODOR
58	D	7	4	24	22				BROWN SILTY CL, ORANGE (IRON) MOTTLING	
60	E	6	4	24	18				GRAY SILTY CL W/ COARSE SAND (1/8 IN)	MOIST NO ODOR
62									GRAY SILTY CL W/ MED GRAVEL AND SAND (UPPER 6 IN)	MOIST NO ODOR
64									GRAY SILTY CLAY (UPPER 15") BROWN SILTY SAND W/ GRAVEL (WET) 2 IN LENS GRAY SILTY CLAY (1")	MOIST (WET).

Drilling Contractor: ATEC Logged By: M. Dowlat Chkd. By: 7/12/95 Date: 7/12/95

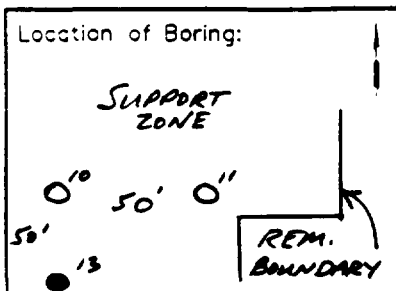


Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1

PROJECT: ENVIRO-CHEM CS21 (DEI 2455.005)



Water Depth: _____
Date: _____
Time: _____
Hole Depth: _____
Casing Depth: _____

Boring No. 13

Feature: _____

Coordinates: N _____

E _____

Ground Elev.: _____

Casing Elev.: _____

Total Depth: 10.3

Bottom Elev.: _____

Date Started: 7/13 Time: 14:12

Drilling Method(s): HSA (33/8 ID)

MOBIL DRILL B-61

Hole/Casing Size(s): 8 IN / NA

Date Complete: 7/13 Time: 14:30

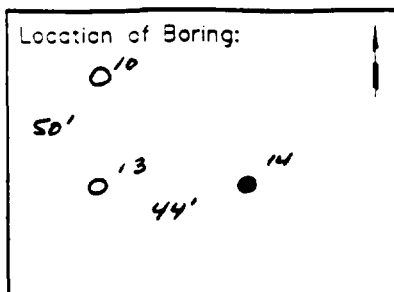
Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classification Field Determination	Graphic Log	Sampling Method(s):	Sample Dimensions:	Hammer Weight/Drop:	Surface Conditions:	SOIL DESCRIPTION	REMARKS
2	A	10 19 25 53	24	14		CL			SPT	2x24 IN	140/30	No. 2 GRAV. to 2.0' BSG.	SILTY CLAY: DR. BRN., V. STIFF TO HARD, NON-CONES. W/ LS RK. FRACS IN LOWER 12 IN	GRY-BLK STN BTX ODOOR DRY-SL. MOIST
4	B	10 9 10 9	24	15		CL							SILTY CLAY: AS ABOVE	AS ABOVE
6	C	2 3 3 3	24	18		CL							CLAY: BRN-GRN, SFT, NO SAND-GRAV., PLAS. VERY UNIFORM, CONES.	NO STN/ODOR V. MOIST
8	D	1 2 2 4	24	19		CL							SILTY CLAY: MED. BRN. W/ YEL-ORNG. MOTT. MIN F-GRAV. MOD. PLAS., SFT.	SL ODOOR/STN. V. MOIST
10	E	50	.3	.3		CL							SILTY CLAY: MED. BRN (WET) TR F-GRAV + C-SAND	Auger refusal Water dripping off spoon.
BTH = 10.3' BSG SAMPLES LOGGED FROM BASE OF GRAVEL FILL TO T.D.										HEAD SPACE ANALYSIS PID (ppm) 13A = 20.0 B = 36.6 * C = 1.0 D = 6.8 * E = No sample * = 126 samples				

Drilling Contractor: ATEC Date: 7/13/95 Logged By: D. GELHAUSEN Chkd. By:



Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1PROJECT: EVIRD-CHEM CSZ1 (DEI 2455.005)

Water Depth: _____
Date: _____
Time: _____
Hole Depth: _____
Casing Depth: _____

Boring No. 14
Feature: _____
Coordinates: N _____
E _____

Drilling Method(s): HSA (3 3/8 ID)

Ground Elev.: _____

Casing Elev.: _____

Date Started: 7/13 Time: 14:50Hole/Casing Size(s): 8 IN / NATotal Depth: 12.0' BSGDate Complete: 7/13 Time: 15:20

Bottom Elev.: _____

Sampling Method(s): SPTSample Dimensions: 2x24 IN Hammer Weight/Drop: 140/30Surface Conditions: NO. 2 GRAY. TO 2.0' BSG

SOIL DESCRIPTION

REMARKS

FILL: GRAY CONCRETE
GROUND-UP W/ AUGER HEAD

DRIVE 1ST SPT. 1'
HIT CONCRETE SLAB
AUGER REFUSAL

CLAYEY GRAVEL: MED. BRN
SL PLAS CLY W/ F-GRAV (65%)
(MAX DIA 1/2 IN)

STN/ODOR
MOIST

SILTY CLAY: BRN-GRN, SFT
MNR. F-GRAV.

SL ODOR/STN
V. MOIST

SILTY CLAY: BRN. MED-STIFF
W/ MNR. F-GRAV., PLAS.

SL ODOR/STN
MOIST

SILTY CLAY: AS ABOVE

WET IN TIP OF SPT.
NO STN/ODOR

BTH = 12.0' BSG
SAMPLES LOGGED
FROM BASE OF
GRAVEL FILL - T.D.

HEAD SPACE ANALYSIS
PID (ppm)

14A = No sample

B = 1.2 *

C = AR

D = 9.7 *

E = 1.2

* = 126 samples

Date: 7/13/95Logged By: D. GELHAUSEN Chkd. By: _____Drilling Contractor: ATEC

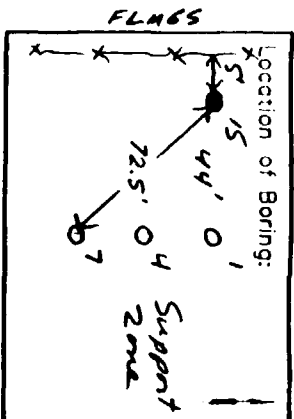
DOW

Dow Environmental

SOIL BORING LOG

PAGE 1 OF 1

PROJECT: ENV180-CHEM CST1 (DEI 2455.005)



Water Depth: _____
Date: _____
Time: _____
Hole Depth: _____
Casing Depth: _____

Boring No. 15
Feature: _____
Coordinates: N _____
E _____

Drilling Method(s): HSA(33/810)

Ground Elev.: _____

MOBIL DRILL B-61

Casing Elev.: _____

Hole/Casing Size(s): 8 in / NA

Total Depth: 10.0' BSG

Date Started: 7/13 Time: 17:00
Date Complete: 7/18 Time: 17:30

Bottom Elev.: _____

Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classification Field Determination	Graphic Log	Sampling Method(s):	Sample Dimensions:	Hammer Weight/Drop:	Surface Conditions:	SOIL DESCRIPTION	REMARKS
10	A	12	14	18	12	NA	NA		SPT	2x24 in	140/30	N6.2 GRV. TO 0.5' BSG	FILL: BRICK FRAGS. BIK SANDY CLAY, LOOSE	SL ODOR HYV STN SL MOIST
8	B	17	50	24	12	NA	NA						FILL: AS ABOVE	WET BLK STN
6	C	18	7	24	14	NA	NA						FILL: AS ABOVE	AS ABOVE
4	D	33	3	24	3	NA	NA						FILL: AS ABOVE	POOR REC. DUE TO BRICK IN TID SPT.
2	E	1	2	24	24	CL	CL						FILL: AS ABOVE TO 9' (UPPER 12 in.) LOWER 12 in. BRN, WET SILTY CLAY.	WATER DRIPPING OFF SPT NO STN/ODOR
10														

BTH = 10.0' BSG
Samples logged
from base of fill
to T.D.

HEAD SPACE ANALYSIS
PID(ppm)
15 A = 5.3 *
B = 0.6
C = 0.0
D = 0.0
E = 0.0 *

* : 106 Samples
Also MS-MSD



PAGE 1 OF 1

Location of Boring:

* = FLAG

Water Depth: _____
 Date: _____
 Time: _____
 Hole Depth: _____
 Casing Depth: _____

Boring No. 16

Feature: _____

Coordinates: N _____

E

Ground Elev.:

Casing Elev.: _____

Total Depth: 10.0' BSC

Bottom Elev.: _____

Drilling Method(s): HSA (3 3/8 ID)
MOBIL DRILL B-61

Hole/Casing Size(s): 8 in / NA

Date Started: 7/13 Time:

Date Complete: 7/13 Time: _____

Date: 7/13/95

Logged By: D. GELHAUSEN Chkd. By:

Drilling Contractor: *ATEC*

Boring Depth (ft/m)	Sample Interval	Sample No.	Blows per 6in/15 cm	Length Driven (in/cm)	Length Recovered (in/cm)	Graphic Recovery	Unified Soil Classification Field Determination	Graphic Log	Sampling Method(s):	
									SPT	
									Sample Dimensions: <u>2x24 IN</u> Hammer Weight/Drop: <u>140/30</u>	
									Surface Conditions: <u>No. 2 GRAV. TO 0.5' BSG.</u>	
									SOIL DESCRIPTION	REMARKS
2	/	A	50	24	14	NA			FILL: BRICK, NAILS, SURFACE GRAV. SOME CLY. PCE. OF LINER FROM 0.5' BSG.	SPT #1 0.0-2.0
		B	NA	NA	NA	NA			NO SAMPLE:	CLY W/ BLK STN/ODOR
4	/	C	50	24	3	CL			SANDY CLAY: BRN-BLK. W/ RK. FRAGS	DRLR. ADV. AUGERS TO 4' W/OUT FIRST DRIVING SPT.
6	/	D	33	24	26 12	CL			SILTY CLAY: BRN-GRN, SFT W/ MNR. F-GRAV.	AUGER REFUSAL POOR REC. W/ BK STN, SL. ODOR, MOIST.
8	/	E	1 2 1	24	20	CL SC			SILTY CLAY: UPPER 14 IN. BRN W/ TR F-GRAV. LOWER 6 IN BRN. CLY EY SAND	NO ODOR/SL STN MOIST
10	/									V. MOIST POSS. SEPTIC ODOR WET
									BTH = 10.0' BSG	HEAD SPACE ANALYSIS PID(ppm)
										16A = 1.2 *
										B = NS
										C = NS
										D = 0.6 *
										E = 0.5
										* = 106 samples

B



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APPENDIX B
VOC HEADSPACE ANALYSES LOGS

B1

FORM 11.8

2455.005

HEADSPACE ANALYSIS

Work Package Number: ECC CSZ1 Date: 7/11/95.Instrument Type/Serial No.: OVM 5805/35697-251Outside Temperature (°F): 93Gas Select Setting: N/A
BOEING

Sample Time	Tank No.	Location	Depth FT	FID PID	Methane	OVA FID - Methane
1705	01	ECC-B01ASF	0-2	1.5	—	—
1710		B	2-4	0.0	—	—
1720		C*	4-6	0.2	—	—
1725		D	6-8	0.0	—	—
1730	↓	E	8-10	0.0	—	—

Notes: * Not enough sample volume retained
to collect laboratory sample for this interval.

SAMPLES SENT FOR CLP VOC'S:

B01-A (0-5 FT HIGHEST HEADSPACE)

B01-E (5-10 FT " " IN RECOVERABLE

SAMPLE, NOTE B01-C LOW RECOVERY)

J: HARVIS, DE1

B2/B3

FORM 11.8

HEADSPACE ANALYSIS

Work Package Number: ECC CS21 Date: 7/12/95Instrument Type/Serial No.: OVM. 5805/ 35697 - 251Outside Temperature (°F): 94.Gas Select Setting: N/ABORING

Sample Time	Tank No.	Location	Depth FT.	FID PID	Methane	OVA FID - Methane
0905	02	ECC - B02 A SF	0-2	113.7	—	—
0910		B	2-4	49.4	—	—
0915		C	4-6	22.5	—	—
0920		D	6-8	2.2	—	—
0925	↓	E	8-10	2.5	—	—
0940	03	ECC - B03 A SF	0-2	10.6	—	—
0945		B	2-4	40.7	—	—
0950		C	4-6	700	—	—
0955		D	6-8	1267	—	—
1000	↓	E	8-10	658	—	—

Notes: CLP SAMPLES!B02 A - (0-5 FT HIGHEST VOC)B02 E - (5-10 FT 'LOW VOC' TO SATISFY FSP 10%)B03 C - (0-5 FT HIGHEST VOC)B03 D - (5-10 FT HIGHEST VOC)

B4/B7

FORM 11.8

2455.005

HEADSPACE ANALYSIS

Work Package Number: ECC CSZL Date: 7-11-95Instrument Type/Serial No.: CVM 560S / 35697-251Outside Temperature (°F): 73° FGas Select Setting: N/A

BEARING

Sample Time	Time No.	Location	Depth FT	EID PID	Methane	OVA FID - Methane
1105	04	ECC-B04ASF	0-2'	1.1	—	—
1110		B	2-4'	4.5	—	—
1115		C	4-6'	25.5	—	—
1120		D	6-8'	3.1	—	—
1125	↓	E	8-10'	0.6	—	—
1140	07	ECC-B07ASF	0-2'	0.2	—	—
1145		B	2-4'	2.0	—	—
1150		C	4-6'	0.6	—	—
1155		D	6-8'	9.5	—	—
1200	↓	E	8-10'	12.9	—	—
		ECC				

Notes: SAMPLES SENT FOR CLP VOC'S :B04 - C (0-5 FT HIGHEST HEADSPACE)B04 - E (5-10 FT 'NON DETECT' TO SATISFY FSP 10% REQ'T)B07 - C (0-5 FT HIGHEST HEADSPACE IN RECOVERABLESAMPLE, NOTE B07 - B WAS GRAVEL/DEBRIS W/ LOW RECOV.)B07 - E (5-10 FT HIGHEST HEADSPACE)

J. Harris, DE1

B5/B6

FORM 11.8

HEADSPACE ANALYSIS

Work Package Number: ECC CS 21 Date: 7/12/95Instrument Type/Serial No.: OVM 5805/35697-251Outside Temperature (°F): 94Gas Select Setting: N/A

BORING

Sample Time	Tank No.	Location	Depth	FID PID.	Methane	OVA FID - Methane
1125	05	ECC - B05 A SF	0-2	529	—	—
1130	↓	B	2-4	1340	—	—
1135	↓	C	4-6	264	—	—
1140	↓	D	6-8	142.8	—	—
1145	↓	E	8-10	72.6	—	—
		ECC - B06 A SF				
		B				
		C				
		Mark D. D				
		E				

Notes: CLP SAMPLESB 05 B - (0-5 FT HIGHEST VOC)B 05. C - (5-10 FT HIGHEST VOC)~~B 06 C - (0-5 FT H)~~Mark D. B 06 E →

B6/B9

FORM 11.8

2455.005

HEADSPACE ANALYSIS

Work Package Number:

ECC CSZ1

Date:

7/12/95

Instrument Type/Serial No.:

OVM 5805/35697-251

Outside Temperature (°F):

94

Gas Select Setting:

N/ABORING

Sample Time	Park No.	Location	Depth	FID PID.	Methane	OVA FID - Methane
1350	06	ECC-B06 A SF	0-2	18.1	—	—
1355		B	2-4	33.5	—	—
1400		C	4-6	30.7	—	—
1420		D	6-8	10.0	—	—
1425	✓	E	8-10	4.6	—	—
1525	09	ECC-B09 A SF	0-2	18.1	—	—
1530		B	2-4	8.9	—	—
1535		C	4-6	18.1	—	—
1540		D	6-8	0.0	—	—
1545	✓	E	8-10	0.3	—	—

Notes:

CLP SAMPLES!B06 C - (0-5 FT HIGHEST VOC)B06 E - (5-10 FT 'LOW VOC' TO SATISFY FSP REQ'T)B09 A - (0-5 FT HIGHEST VOC)B09 D - (5-10 FT 'NON DETECT' TO SATISFY 10% FSP REQ'T)

B10/B11

FORM 11.8

2499,005

HEADSPACE ANALYSIS

Work Package Number: ECC CS21 Date: 7/11/95Instrument Type/Serial No.: OVM 5805 / 35697-251Outside Temperature (°F): 93Gas Select Setting: N/ABORING

Sample Time	Tank No.	Location	Depth FT.	FID PID	Methane	OVA FID - Methane
1445	10	ECC - B10A SF	0-2	1.3	—	—
1450		B	2-4	10.8	—	—
1455		C	4-6	15.6	—	—
1500		D	6-8	7.6	—	—
1505	↓	E	8-10	27.3	—	—
1555	11	ECC - B11A SF	0-2	0.6	—	—
1600		B	2-4	10.2	—	—
1605		C	4-6	50.2	—	—
1610		D	6-8	61.5	—	—
1615	↓	E	8-10	14.2	—	—

Notes: SAMPLES SENT FOR CLP VOC'S:B10-C (0-5 FT HIGHEST HEADSPACE)B10-E (5-10 FT " ")B11-C (0-5 FT " ")B11-D (5-10 FT " ")J. Harris, DEI

B12/88

FORM 11.8

2455.005

HEADSPACE ANALYSIS

Work Package Number: ECC Date: 7/12/95Instrument Type/Serial No.: OVM 580 S/35697-251Outside Temperature (°F): 94Gas Select Setting: N/A

BORING

Sample Time	Tank No.	Location	Depth FT.	FID PID	Methane	OVA FID - Methane
1605	12	ECC - B 12 A SF	0-2	47.4	—	—
1610	↓	B	2-4	494.	—	—
1615	↓	C	4-6	691	—	—
1620	↓	D	6-8	249	—	—
1625	↓	E	8-10	28.5	—	—
1205	08	ECC - B08 A SF	0-2	5.3	—	—
1210	↓	B	2-4	8.3	—	—
1215	↓	C	4-6	71.7	—	—
1220	↓	D	6-8	67	—	—
1225	↓	E	8-10	25.3	—	—

Notes: CLP SAMPLESB08 C - (0-5 FT HIGHEST VOC)B08 D - (5-10 FT HIGHEST VOC)B12 B - (0-5 ~~5-10~~ FT HIGHEST VOC)B12 C - (5-10 FT HIGHEST VOC)

B13/B14

FORM 11.8

HEADSPACE ANALYSIS

Work Package Number: ECC CS21 Date: 7/13/95Instrument Type/Serial No.: OVM 580S/35697-251Outside Temperature (°F): 96°Gas Select Setting: N/ABORING

Sample Time	Tank No.	Location	Depth FT	FID PID	Methane	OVA FID - Methane
14:12	B13	ECC-B13 ASF	0-2	20.0		
		B	2-4	36.6		
		C	4-6	1.0		
		D	6-8	6.8		
		E	8-10	ND ⁽¹⁾		
		ECC-B14 ASF	0-2	ND ⁽¹⁾		
		B	2-4	1.2		
		C	4-6	ND ⁽¹⁾		
		D	6-8	9.7		
		E	8-10	1.2		

Notes: CLP SAMPLES: (1) INSUFFICIENT RECOVERY/ND - NO DATAB13 B - (HIGHEST HEADSPACE, 0-5 FT)B13 D - (" " , 5-10 FT)B14 B - (" " , 0-5 FT)B14 D - (" " , 5-10 FT)

B15/B16

FORM 11.8

HEADSPACE ANALYSIS

Work Package Number: ECC CSZ1 Date: 7/13/95Instrument Type/Serial No.: OVM 580S/35697-251Outside Temperature (°F): 96°Gas Select Setting: N/A
BORING

Sample Time	Tank No.	Location	Depth FT	FID PID	Methane	OVA FID - Methane
17:00	B15	ECC - B15 ASF	0-2	5.3		
		B	2-4	0.6		
		C	4-6	0.0		
		D	6-8	0.0		
		E	8-10	0.0		
16:10	B16	ECC - B16 ASF	0-2	1.2		
		B	2-4	ND ⁽¹⁾		
		C	4-6	ND ⁽²⁾		
		D	6-8	0.6		
		E	8-10	0.3		

Notes: (1) NO SPOON SAMPLE TAKEN / ND - NO DATA
 (2) INSUFFICIENT RECOVERY - NO HS SAMPLE

SAMPLES FOR CLP: B15 - A (HIGHEST HEADSPACE 0-5 FT.)

B-15 E (NON DETECT, FSP 10% REQ'T, ALSO ALL C, D, E NON DETEC)

B-16 A (HIGHEST HEADSPACE 0-5 FT.)

B-16 D (" " 5-10 FT.)

c

APPENDIX C
DATA VALIDATION REPORTS



Dow Environmental Inc.
Penn Center West
Building III, Suite 300
Pittsburgh, PA 15276
Fax: (412) 788-1316
(412) 788-2717

PGH-95-JJS-823

DATE: August 22, 1995

TO: Mr. Mark J. Dowiak
Dow Environmental Inc.
Penn Center West, Building III, Suite 300
Pittsburgh, Pennsylvania 15276

FROM: John J. Smelko
Dow Environmental Inc.

SUBJECT: Data Validation of Volatile Organic Compounds (VOCs)

Re: Enviro-Chem Superfund (ECC) Site

Ceimic Corporation Project Number: 950487
Sample Delivery Group (SDG) Number: B15A
DEI Project Number: 2455.005

<u>Soil Samples:</u>	B13B	B13D
	B14B	B14D
	B15A	B15E
	B16A	B16D
	DUP04	

Field Duplicates: DUP04 is a field duplicate of B16D.

OVERVIEW

This set of samples, collected on July 13, 1995, from the Enviro-Chem Superfund Site in Zionsville, Indiana, contains nine (9) soil samples, including one (1) field duplicate pair. All samples were prepared and analyzed for volatile organic compounds (VOCs) according to the U.S. EPA Contract Laboratory Program's (CLP) Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration (Version OLM03.0).

SUMMARY

All compounds and analytes were successfully analyzed in all samples. The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, GC/MS instrument performance checks, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, internal standard areas and retention times, analytical sequence, compound identification and quantitation, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

MAJOR ISSUES

All positive hits for acetone in all samples, including method blanks, have been determined to be non-detects based on a comparison of the sample/blank mass spectra versus the standard mass spectrum. Although the primary and secondary ions were present in each case, the mass spectra were poorly matched to that of the standard; several major ion peaks were missing from the sample spectra. Moreover, the peaks that were present in the samples were disproportionate with the standard relative ion intensities. Similarly, the mass spectrum for the vinyl chloride concentration reported for sample B14D did not compare very well to that of the standard, but most of the prominent peaks were present in the sample. In addition, there was evidence of a coelution problem affecting the identification and quantitation of this compound. Taking this into consideration, there was a certain amount of doubt as to whether or not vinyl chloride was actually present in this sample. Therefore, it must be considered to be tentatively identified at an estimated concentration, "NJ".

MINOR ISSUES

There was evidence of coelution problems in the mass spectra associated with 2-butanone in samples B14B and B14D. Because of the possibility for the final concentrations of these compounds to be biased, the reported results have been qualified as estimated, "J".

Methylene chloride was found at low level concentrations in all three method blanks associated with the sample data in this package, the highest value being 22 $\mu\text{g/kg}$. As a result of this blank contamination, sample results less than ten (10) times the highest blank value have been qualified as non-detect, "U". Note that in instances where the affected sample concentration was less than the contract required quantitation limit (CRQL), the value was raised to the CRQL in addition to the application of the "U" flag. In a similar fashion, any tentatively identified compounds (TICs)

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Dow Environmental Inc.
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found in any sample that were less than ten (10) times those found in any blank have been lined out, initialled, and dated in the TIC section of this report.

The percent relative standard deviation (%RSD) between the five initial calibration standard relative response factors (RRFs) for bromomethane in the instrument calibration sequence was greater than the 30 percent limit. Thus, all associated data have been qualified as estimated, "UJ", as they were all non-detect.

The continuing calibration check standard associated with sample DUP04 had a percent difference (%D) between its RRF for methylene chloride and the applicable mean initial calibration RRF that was greater than the 25 percent control limit. Consequently, the methylene chloride result reported for DUP04 has been qualified as estimated, "UJ", since it was previously flagged as a non-detect due to blank contamination.

NOTES

Please note that the laboratory reports concentrations that are below the CRQLs but above the instrument detection limits (IDLs) as estimated, "J", since there is an unacceptable level of accuracy at these levels.

After evaluating the results of the B16D/DUP04 field duplicate pair, it was determined that all reported compound concentrations were comparable. Note that an RPD of 50 percent was used as the control limit to make comparisons when both results of the field duplicate pair were greater than five (5) times the CRQL and a control limit of plus or minus two (2) times the CRQL was used when one or both concentrations of the pair were less than five (5) times the CRQL.

A comparison, similar to the field duplicate evaluation, was also made between the non-spiked compounds of the MS/MSD pair and its associated original, unspiked sample, B15E. The only difference in the comparison criteria was that a %RSD was used instead of an RPD when all three associated results were greater than five (5) times the CRQL. Upon completion of the evaluation, it was determined that all associated results were comparable.

There were no trip blanks associated with this sample delivery group, nor were there any storage blanks analyzed by the laboratory.

These data were reviewed according to the U.S. EPA Contract Laboratory Program's National Functional Guidelines for Organic Data Review (February 1994) and with reference to CLP methods and requirements. The results are presented in the Data Summary of this report and should be accepted as qualified.

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Dow Environmental Inc.
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INFORMATION REGARDING REPORT CONTENT

Attachments:

1. Glossary of Data Qualifier Codes.
2. Data Summary. This may include:
 - a) All positive results with qualifier codes, if applicable;
 - b) All unusable detection limits qualified with "R"; and
 - c) All estimated detection limits qualified with "UJ".
3. Appendix A - Results as Reported by the Laboratory.
4. Appendix B - Tentatively Identified Compounds.
5. Appendix C - Support Documentation which includes details to support the statements made in this report.



Dow Environmental Inc.
Penn Center West
Building III, Suite 300
Pittsburgh, PA 15276
Fax: (412) 788-1316
(412) 788-2717

PGH-95-JJS-822

DATE: August 22, 1995

TO: Mr. Mark J. Dowiak
Dow Environmental Inc.
Penn Center West, Building III, Suite 300
Pittsburgh, Pennsylvania 15276

FROM: John J. Smelko
Dow Environmental Inc.

SUBJECT: Data Validation of Volatile Organic Compounds (VOCs)

Re: Enviro-Chem Superfund (ECC) Site

Ceimic Corporation Project Number: 950480
Sample Delivery Group (SDG) Number: B02ASL
DEI Project Number: 2455.005

<u>Soil Samples:</u>	ECC-B02ASL	ECC-B02ESL
	ECC-B03CSL	ECC-B03DSL
	ECC-B05BSL	ECC-B05CSL
	ECC-B06CSL	ECC-B06ESL
	ECC-B08CSL	ECC-B08DSL
	ECC-B09ASL	ECC-B09DSL
	ECC-B12BSL	ECC-B12CSL
	ECC-DUP2	ECC-DUP3

Equipment Rinsate Blank: ECC-RINSATE BLANK 1

Field Blank: ECC-DS WATER (Distilled Water Check Sample)

Field Duplicates: ECC-DUP2 is a field duplicate of ECC-B06ESL
ECC-DUP3 is a field duplicate of ECC-B12CSL

OVERVIEW

This set of samples, collected on July 12, 1995, from the Enviro-Chem Superfund Site in Zionsville, Indiana, contains one (1) equipment rinsate blank, one (1) field blank, and sixteen (16) soil samples, including two (2) field duplicate pairs. All samples were prepared and analyzed for volatile organic compounds (VOCs) according to the U.S. EPA Contract Laboratory Program (CLP) Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration (Version OLM03.0).

SUMMARY

All compounds and analytes were successfully analyzed in all samples. The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, GC/MS instrument performance checks, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, internal standard areas and retention times, analytical sequence, compound identification and quantitation, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

MAJOR ISSUES

All positive hits for acetone in all samples, including many blanks, have been determined to be non-detects based on a comparison of the sample/blank mass spectra versus the standard mass spectrum. Although the primary and secondary ions were present in each case, the mass spectra were poorly matched to that of the standard; several major ion peaks were missing from the sample spectra. Moreover, the peaks that were present in the samples were disproportionate with the standard relative ion intensities. Similarly, the 2-butanone results reported for samples ECC-B05CSL, ECC-B12CSL, and ECC-DUP3, as well as the positive concentration reported for method blank VBLKHE, were deemed to be misidentified based on poor mass spectral matches; these values should all be considered non-detect. Lastly, the mass spectrum for the bromomethane concentration reported for method blank VBLKCC did not compare very well to that of the standard, but most of the prominent peaks were present in the sample. In addition, there was evidence of a coelution problem affecting the identification and quantitation of this compound. Furthermore, the concentration of this compound was reported at a level that was below the contract required quantitation limit (CRQL); relative ion intensities tend to become somewhat skewed at such low levels of detection, making it difficult to make a positive identification. Taking all this into consideration, there was a certain amount of doubt as to whether or not

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Dow Environmental Inc.

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bromomethane was actually present in this blank. Therefore, it must be considered to be tentatively identified at an estimated concentration.

MINOR ISSUES

There was evidence of coelution problems in the mass spectra associated with 1,1,2,2-tetrachloroethane in sample ECC-B05CSL and with 1,1-dichloroethene and chlorobenzene in sample ECC-B12BSL. Because of the possibility for the final concentrations of these compounds to be biased, the reported results have been qualified as estimated, "J".

As recorded on the chain-of-custody, the glass jar containing sample ECC-B08DSL was broken but was contained in a "Ziploc Baggie" when it was received by the laboratory. Since the integrity of the sample may have been compromised, all positive and non-detect VOC values reported for this sample have been qualified as estimated, "J" or "UJ", respectively.

The equipment rinsate and field blanks were analyzed outside the 7-day holding time for unpreserved aqueous samples. Therefore, all associated aromatic volatile compounds in each of these two samples have been qualified as estimated, "UJ", as they were all non-detect.

One or more of the following compounds were found at low level concentrations in the equipment rinsate blank, the field blank, and all but one of the method blanks associated with the sample data in this package: chloromethane, bromomethane, methylene chloride, acetone, and 2-hexanone. As a result of this blank contamination, sample results less than five (5) times the highest associated blank value for chloromethane, bromomethane, and 2-hexanone and less than ten (10) times the highest associated blank value for the common laboratory contaminants methylene chloride and acetone have been qualified as non-detect, "U". Note that in instances where the affected sample concentration was less than the CRQL, the value was raised to the CRQL in addition to the application of the "U" flag.

The percent relative standard deviations (%RSDs) between the five initial calibration standard relative response factors (RRFs) for bromomethane and methylene chloride in two of the three instrument calibration sequences were greater than the 30 percent limit. Thus, all associated data have been qualified as estimated, "UJ", as they were all non-detect or qualified as non-detect due to blank contamination.

Many of the continuing calibration check standards had percent differences (%Ds) between their RRFs and the applicable mean initial calibration RRFs that were greater than the 25 percent control limit for one or more of the following compounds: methylene chloride, acetone, 2-butanone, carbon tetrachloride, bromoform, 4-methyl-2-pentanone, and 2-hexanone.

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Dow Environmental Inc.
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Consequently, all associated positive and non-detect sample results have been qualified as estimated, "J" or "UJ", respectively.

Samples ECC-B09DSL and ECC-DUP2 both had low internal standard areas for chlorobenzene-d5. As a result, the laboratory reran these samples at a five-fold dilution. Upon reanalysis, it became evident that there was a matrix effect involved, since all three internal standards in both samples had low area counts. Because only one area count was low in each of the first runs, it was determined that these were the "best" data to report on the Data Summary. An additional factor was involved when assessing the 1,2-dichloroethene (total) results for ECC-DUP2 and ECC-DUP2DL. This compound was over calibration in the initial run at 400 $\mu\text{g/kg}$ and in the latter run it was biased low due to the low internal standard area counts, although it was within the calibration range at 290 $\mu\text{g/kg}$. In both instances, the result would have to be qualified as estimated, "J". Therefore, in order to be conservative, the higher value was deemed to be more appropriate; this value, with the estimation flag, was placed on the Data Summary.

After making field duplicate result comparisons between the ECC-B06ESL/ECC-DUP2 pair and between the ECC-B12CSL/ECC-DUP3 pair, it was determined that the 1,2-dichloroethene (total) and the toluene results were out of control in these two field duplicate pairs, respectively; the relative percent difference (RPD) control of 50 percent was exceeded in both instances. Consequently, the associated concentration in each sample of each pair has been qualified as estimated, "J". Note that an RPD of 50 percent was used as the control limit to make comparisons when both results of the field duplicate pair were greater than five (5) times the CRQL and a control limit of plus or minus two (2) times the CRQL was used when one or both concentrations of the pair were less than five (5) times the CRQL. Using this evaluation procedure, all other compounds in both field duplicate pairs were found to be comparable.

A comparison, similar to the field duplicate comparison, was also made between the non-spiked compounds of the three MS/MSD pairs and their associated original, unspiked samples. The only difference in the comparison criteria was that a %RSD was used instead of an RPD when all three associated results were greater than five (5) times the CRQL. Upon completion of the evaluation, only the total xylene results for ECC-B09ASL were out of control. Thus, the reported result for this compound on the Data Summary has been qualified as estimated, "J".

NOTES

Please note that the laboratory reports concentrations that are below the CRQLs but above the instrument detection limits (IDLs) as estimated, "J", since there is an unacceptable level of accuracy at these levels.

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Dow Environmental Inc.
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There were no trip blanks associated with this sample delivery group, nor were there any storage blanks analyzed by the laboratory.

Please note that the laboratory did not report any tentatively identified compounds (TICs) with these data.

These data were reviewed according to the U.S. EPA Contract Laboratory Program's National Functional Guidelines for Organic Data Review (February 1994) and with reference to CLP methods and requirements. The results are presented in the Data Summary of this report and should be accepted as qualified.

INFORMATION REGARDING REPORT CONTENT

Attachments:

1. Glossary of Data Qualifier Codes.
2. Data Summary. This may include:
 - a) All positive results with qualifier codes, if applicable;
 - b) All unusable detection limits qualified with "R"; and
 - c) All estimated detection limits qualified with "UJ".
3. Appendix A - Results as Reported by the Laboratory.
4. Appendix B - Support Documentation which includes details to support the statements made in this report.



Dow Environmental Inc.
Penn Center West
Building III, Suite 300
Pittsburgh, PA 15276
Fax: (412) 788-1316
(412) 788-2717

PGH-95-JJS-937

DATE: August 24, 1995

TO: Mr. Mark J. Dowiak
Dow Environmental Inc.
Penn Center West, Building III, Suite 300
Pittsburgh, Pennsylvania 15276

FROM: John J. Smelko
Dow Environmental Inc.

SUBJECT: Data Validation of Volatile Organic Compounds (VOCs)

Re: Enviro-Chem Superfund (ECC) Site

Ceimic Corporation Project Number: 950477
Sample Delivery Group (SDG) Number: B04CSL
DEI Project Number: 2455.005

Soil Samples:	B01DUP	ECC-B01ASL
	ECC-B01ESL	ECC-B04CSL
	ECC-B04ESL	ECC-B07CSL
	ECC-B07ESL	ECC-B10CSL
	ECC-B10ESL	ECC-B11CSL
	ECC-B11DSL	

Field Duplicates: B01DUP is a field duplicate of ECC-B01ESL.

OVERVIEW

This set of samples, collected on July 11, 1995, from the Enviro-Chem Superfund Site in Zionsville, Indiana, contains eleven (11) soil samples, including one (1) field duplicate pair. All samples were prepared and analyzed for volatile organic compounds (VOCs) according to the U.S. EPA Contract Laboratory Program's (CLP) Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration (Version OLM03.0).

SUMMARY

All compounds and analytes were successfully analyzed in all samples. The organic analytical data were evaluated by the following quality assurance/quality control (QA/QC) parameters where applicable: technical holding times and preservation, GC/MS instrument performance checks, initial and continuing calibrations, system monitoring compound/surrogate spike recoveries, method and field blanks, matrix spike/matrix spike duplicates (MS/MSDs), field duplicates, internal standard areas and retention times, analytical sequence, compound identification and quantitation, and transcription. Validated sample analysis results are listed on the attached Data Summary forms. Areas of concern with respect to data quality and usability are discussed below.

MAJOR ISSUES

All positive hits for acetone in all samples, including method blanks, have been determined to be non-detects based on a comparison of the sample/blank mass spectra versus the standard mass spectrum. Although the primary and secondary ions were present in each case, the mass spectra were poorly matched to that of the standard; several major ion peaks were missing from the sample spectra. Moreover, the peaks that were present in the samples were disproportionate with the standard relative ion intensities. Similarly, the 2-butanone result reported for method blank VBLKHE was deemed to be misidentified based on a poor mass spectral match; this value should be considered non-detect. Lastly, the mass spectrum for the 1,2-dichloroethene (total) concentration reported for sample ECC-B07ESLRE did not compare very well to that of the standard, but most of the prominent peaks were present in the sample. Taking this into consideration, there was a certain amount of doubt as to whether or not 1,2-dichloroethene (total) was actually present in this sample. Therefore, it must be considered to be tentatively identified, "N".

Based on the initial calibration used to set up instrument MS8, the incorrect contract required quantitation limits (CRQLs) were reported for 1,2-dichlorobenzene in all three medium concentration soil samples: ECC-B10ESL, ECC-B11CSL, and ECC-B11DSL. Each of these values was approximately eight (8) times higher than it should have been; the appropriate CRQL should be the same for all VOCs in each sample, which is calculated directly from the low point standard (10 parts per billion) in the initial calibration. The Data Summary reflects the proper concentrations for these CRQLs in these samples.

MINOR ISSUES

There was evidence of coelution problems in the mass spectra associated with benzene and chlorobenzene in samples ECC-B07ESL and ECC-B10CSL, respectively. Because of the

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Mr. Mark J. Dowiak

Dow Environmental Inc.

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possibility for the final concentrations of these compounds to be biased, the reported results have been qualified as estimated, "J".

One or more of the following compounds were found at low level concentrations in all but one of the method blanks associated with the sample data in this package: chloromethane, methylene chloride, and 2-hexanone. As a result of this blank contamination, sample results for methylene chloride less than ten (10) times the highest blank value have been qualified as non-detect, "U". None of the chloromethane or 2-hexanone sample results were affected by this contamination since they were all non-detect; therefore, no action was required for these two compounds. Note that in instances where the affected sample concentration was less than the CRQL, the value was raised to the CRQL in addition to the application of the "U" flag.

Sample ECC-B07ESL had low internal standard areas for 1,4-difluorobenzene and chlorobenzene-d5. As a result, the laboratory reran it. Upon reanalysis, it became evident that there was a matrix effect involved, since chlorobenzene-d5 still had a low area count. After assessing the two analyses, it was determined that the "best" data to report on the Data Summary should come from the second run since only one area count was low. There were, however, a few exceptions. In an effort to take the more conservative approach, four compounds (vinyl chloride, 1,1-dichloroethane, 1,2-dichloroethene (total), and benzene) were taken from the first analysis of the sample, since these concentrations were higher than their counterparts. Of these four, only the benzene result has been qualified; this was due to the coelution problem discussed earlier.

The percent relative standard deviations (%RSDs) between the five initial calibration standard relative response factors (RRFs) for bromomethane and methylene chloride in two of the three instrument calibration sequences were greater than the 30 percent limit. Thus, all associated data have been qualified as estimated, "UJ", as they were all non-detect or qualified as non-detect due to blank contamination.

Many of the continuing calibration check standards had percent differences (%Ds) between their RRFs and the applicable mean initial calibration RRFs that were greater than the 25 percent control limit for one or more of the following compounds: methylene chloride, carbon tetrachloride, 4-methyl-2-pentanone, and 2-hexanone. Consequently, all associated sample results have been qualified as estimated, "UJ", as they were all non-detect.

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Mr. Mark J. Dowiak
Dow Environmental Inc.
August 24, 1995 - Page 4

NOTES

Please note that the laboratory reports concentrations that are below the CRQLs but above the instrument detection limits (IDLs) as estimated, "J", since there is an unacceptable level of accuracy at these levels.

All five relative percent differences (RPDs) between the matrix spike and matrix spike duplicate concentrations of sample ECC-B04CSL were high. However, since qualification of data should not be based on MS/MSD data alone, no flags were assigned.

After evaluating the results of the ECC-B01ESL/B01DUP field duplicate pair, it was determined that all reported compound concentrations were comparable. Note that an RPD of 50 percent was used as the control limit to make comparisons when both results of the field duplicate pair were greater than five (5) times the CRQL and a control limit of plus or minus two (2) times the CRQL was used when one or both concentrations of the pair were less than five (5) times the CRQL.

A comparison, similar to the field duplicate evaluation, was also made between the non-spiked compounds of the two MS/MSD pairs and their associated original, unspiked samples, ECC-B04CSL and ECC-B11CSL. The only difference in the comparison criteria was that a %RSD was used instead of an RPD when all three associated results were greater than five (5) times the CRQL. Upon completion of the evaluation, it was determined that all associated results in both sets were comparable.

There were no trip blanks associated with this sample delivery group, nor were there any storage blanks analyzed by the laboratory.

Please note that there were no tentatively identified compounds (TICs) reported with the volatile fraction of any samples in this data package.

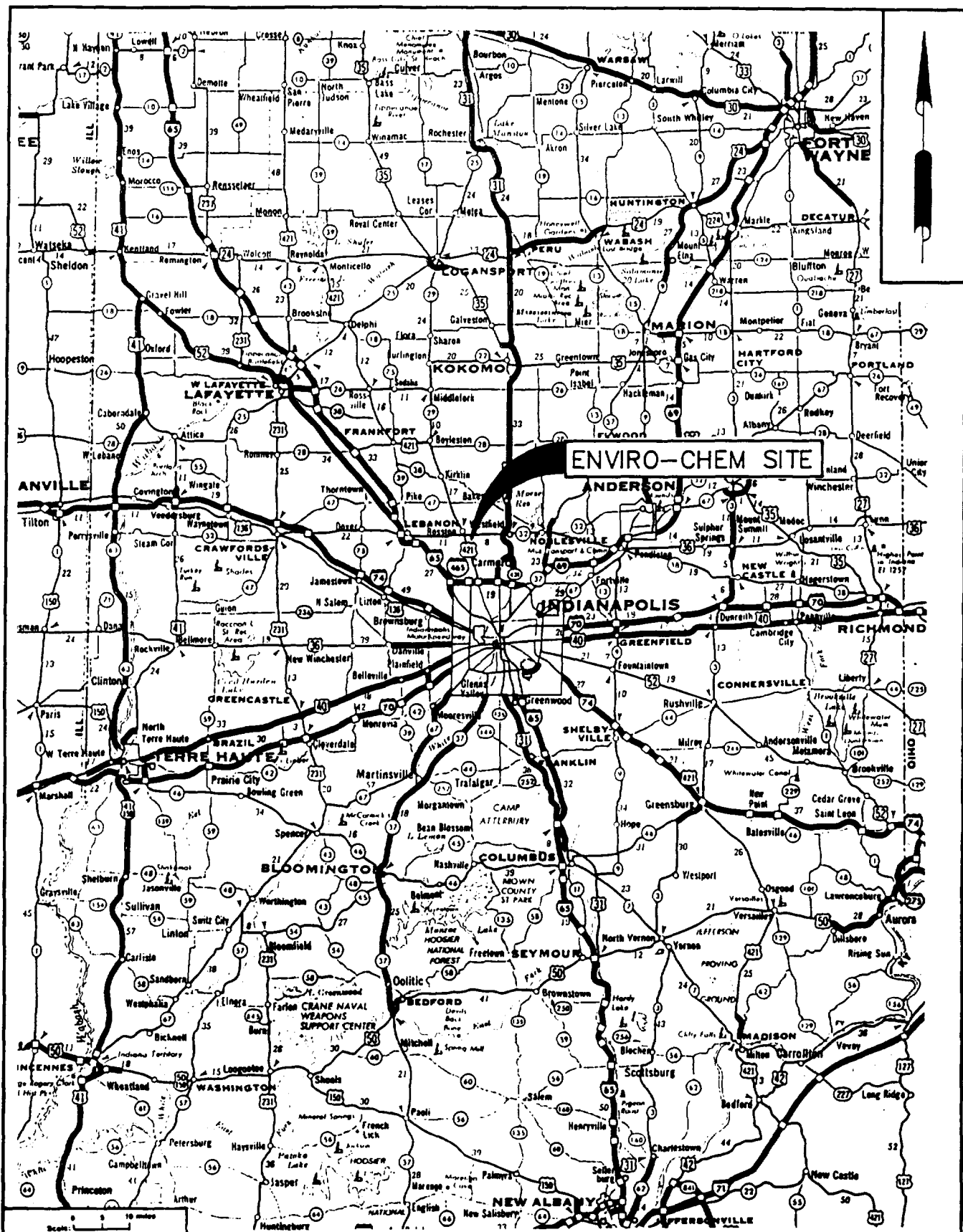
These data were reviewed according to the U.S. EPA Contract Laboratory Program's National Functional Guidelines for Organic Data Review (February 1994) and with reference to CLP methods and requirements. The results are presented in the Data Summary of this report and should be accepted as qualified.

PGH-95-JJS-937
Mr. Mark J. Dowiak
Dow Environmental Inc.
August 24, 1995 - Page 5

INFORMATION REGARDING REPORT CONTENT

Attachments:

1. Glossary of Data Qualifier Codes.
2. Data Summary. This may include:
 - a) All positive results with qualifier codes, if applicable;
 - b) All unusable detection limits qualified with "R"; and
 - c) All estimated detection limits qualified with "UJ".
3. Appendix A - Results as Reported by the Laboratory.
4. Appendix B - Support Documentation which includes details to support the statements made in this report.



SITE LOCATION MAP

ENVIRO-CHEM SUPERFUND SITE

ZIONSVILLE, IN

CLIENT: ENVIRONMENTAL CONSERVATION & CHEMICAL CORP. TRUST JOB NUMBER: 2455

SCALE: AS SHOWN

FIGURE
NUMBER

1-1

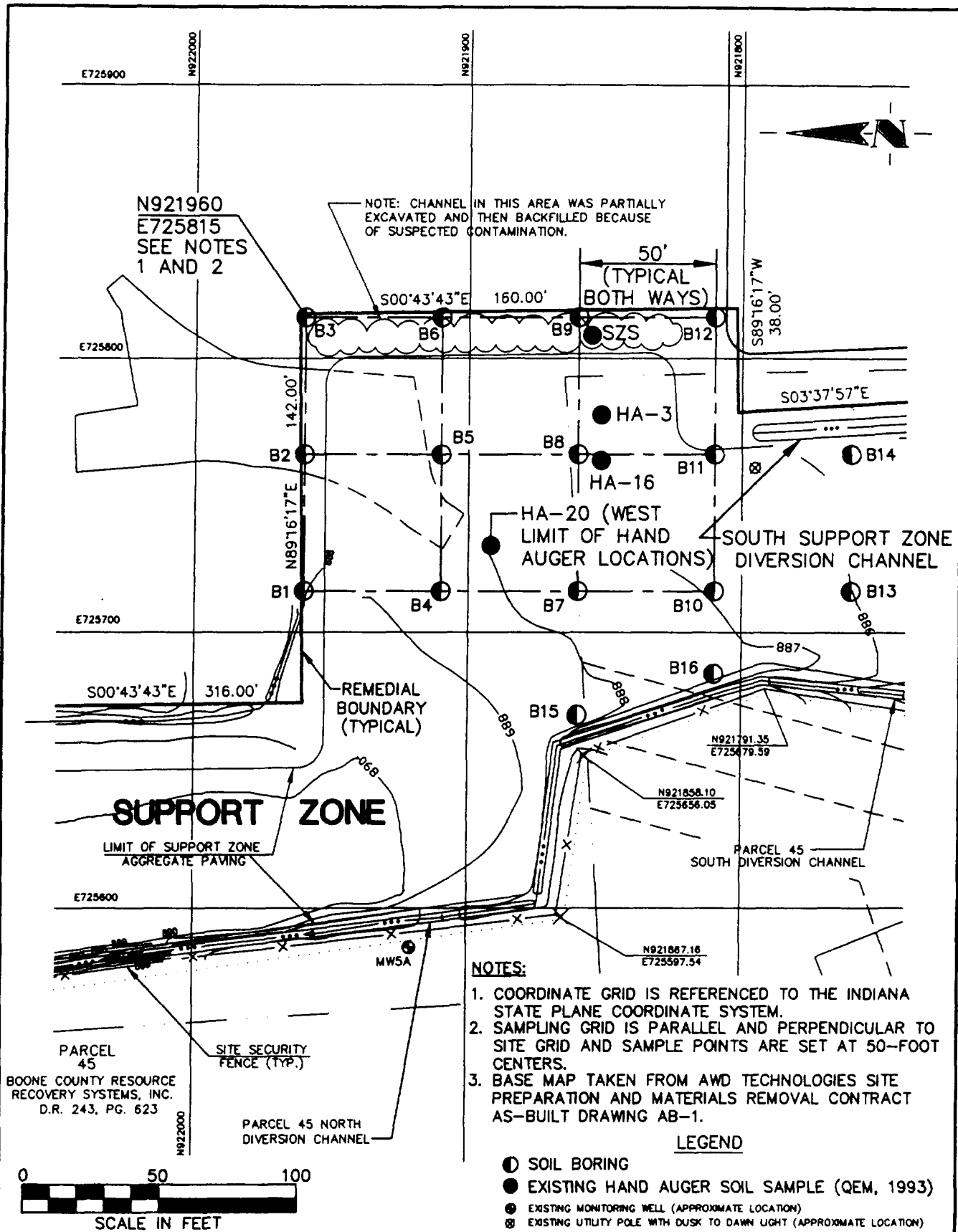
REV
0



Dow Environmental

00
22
22
14
99
55
RR
TT
MM

FILE: \ECC\SUPPORT4



Dow Environmental

CENTRAL SUPPORT ZONE INVESTIGATIONS SOIL SAMPLING LOCATIONS

ENVRO-CHEM SUPERFUND SITE

ZIONSVILLE, IN

CLIENT: ENVIRONMENTAL CONSERVATION AND CHEMICAL CORPORATION TRUST

JOB NUMBER: 2455-005

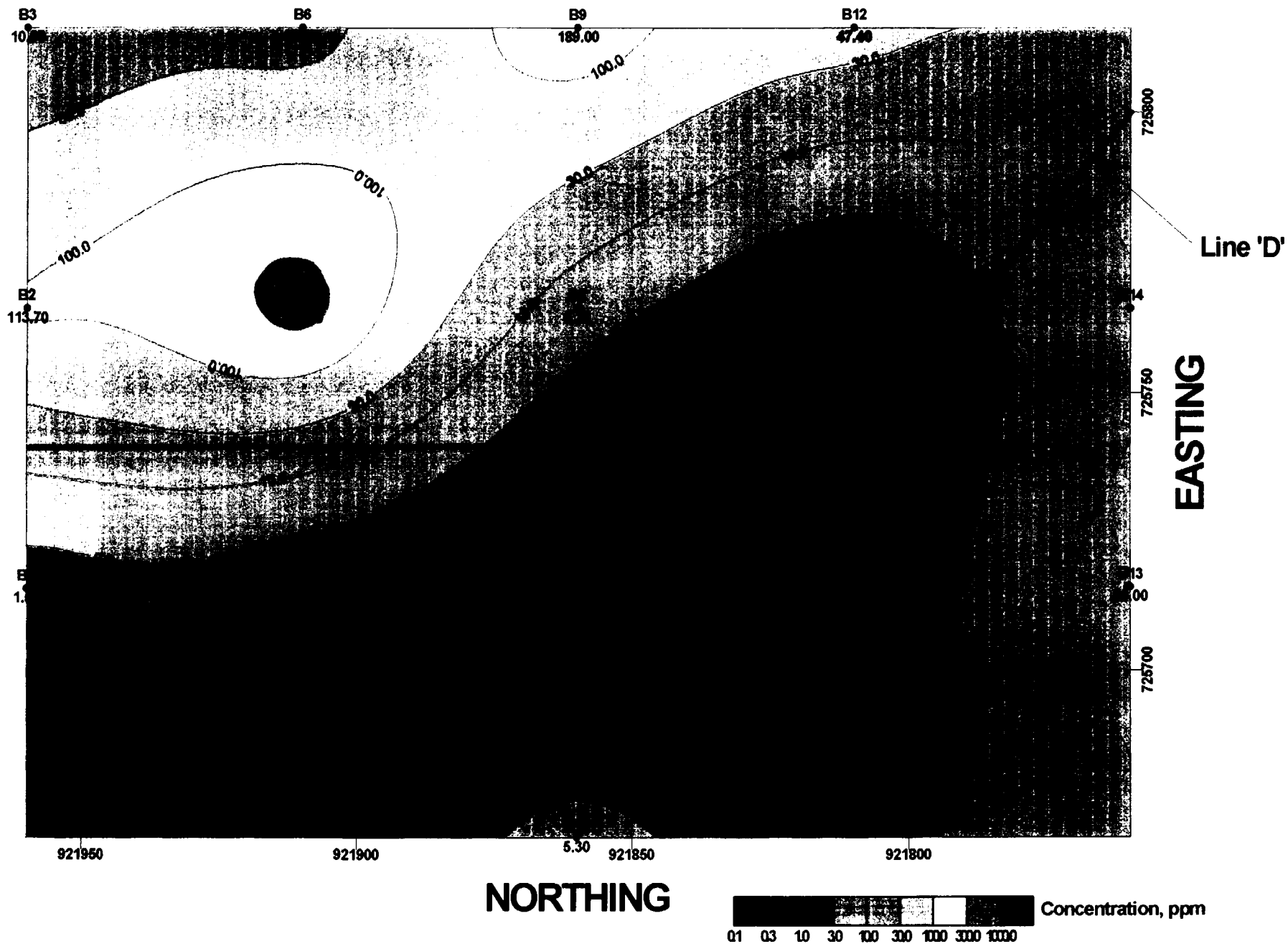
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FIGURE NUMBER

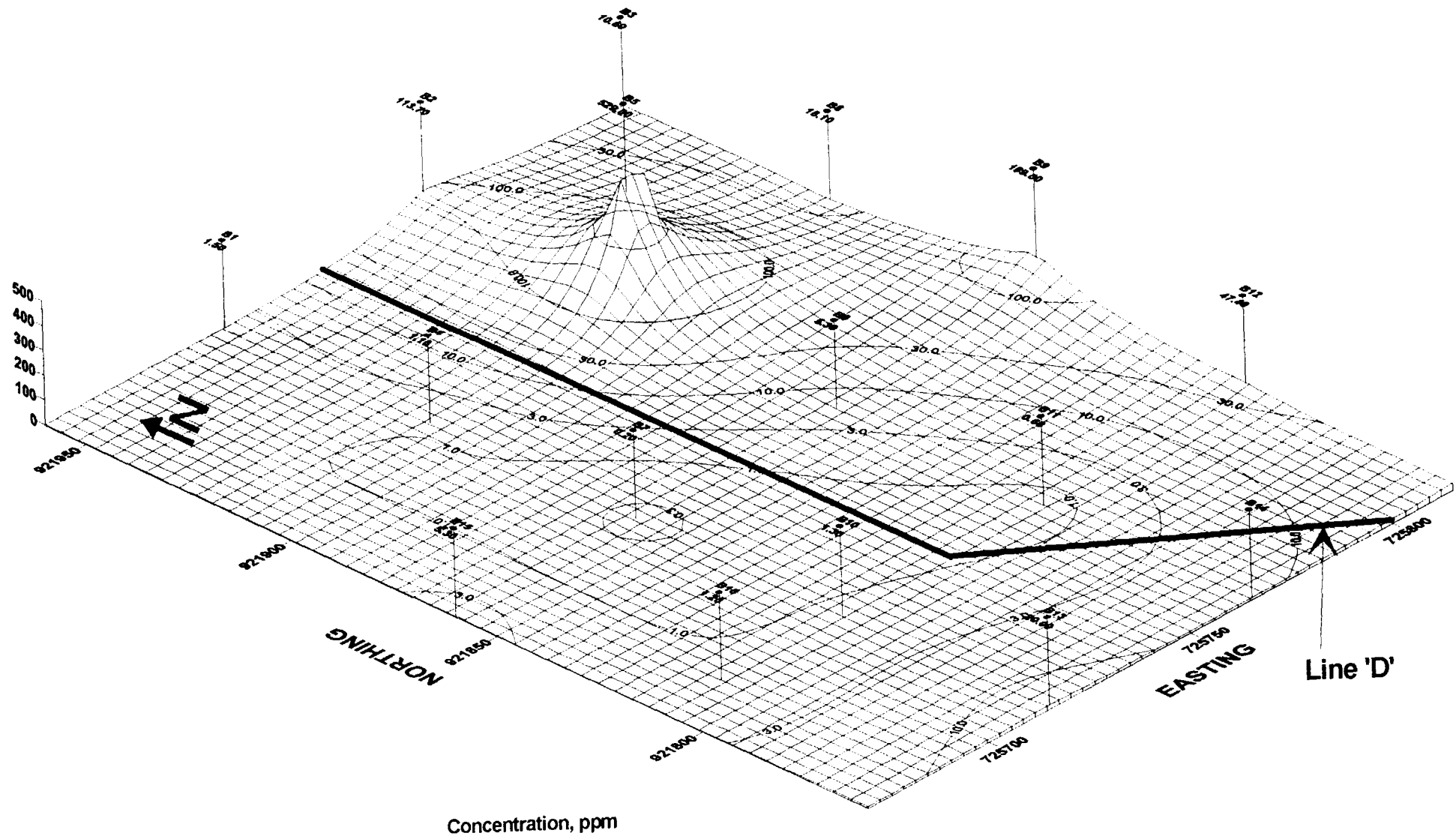
2-1

REV 0

Central Support Zone Investigation (CSZI) PID Readings, ppm (0 - 2 ft.)

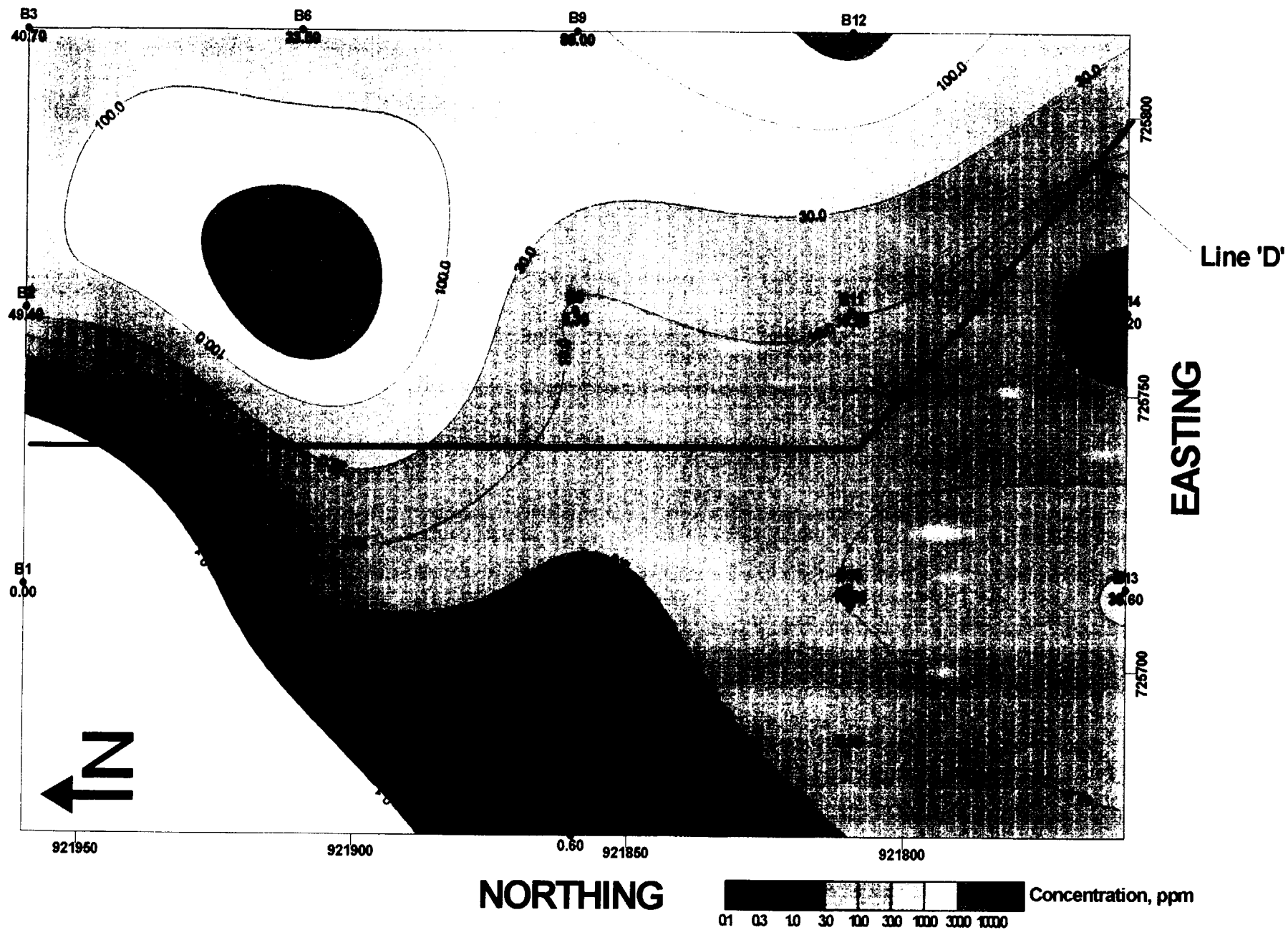


Enviro-Chem Site Central Support Zone Investigation (CSZI) PID Readings, ppm (0 - 2 ft.)

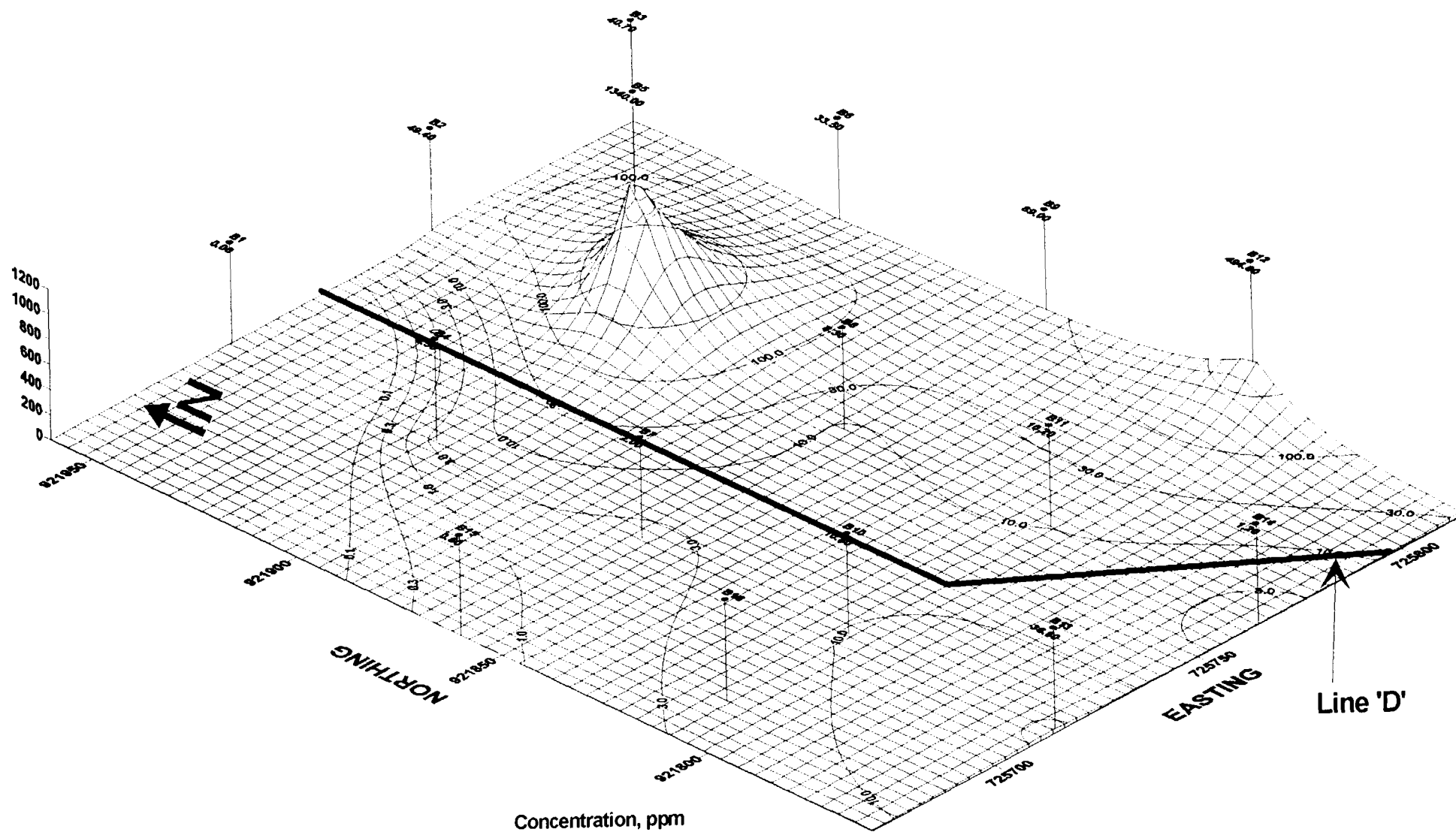


Central Support Zone Investigation (CSZI)

PID Readings, ppm (2 - 4 ft.)

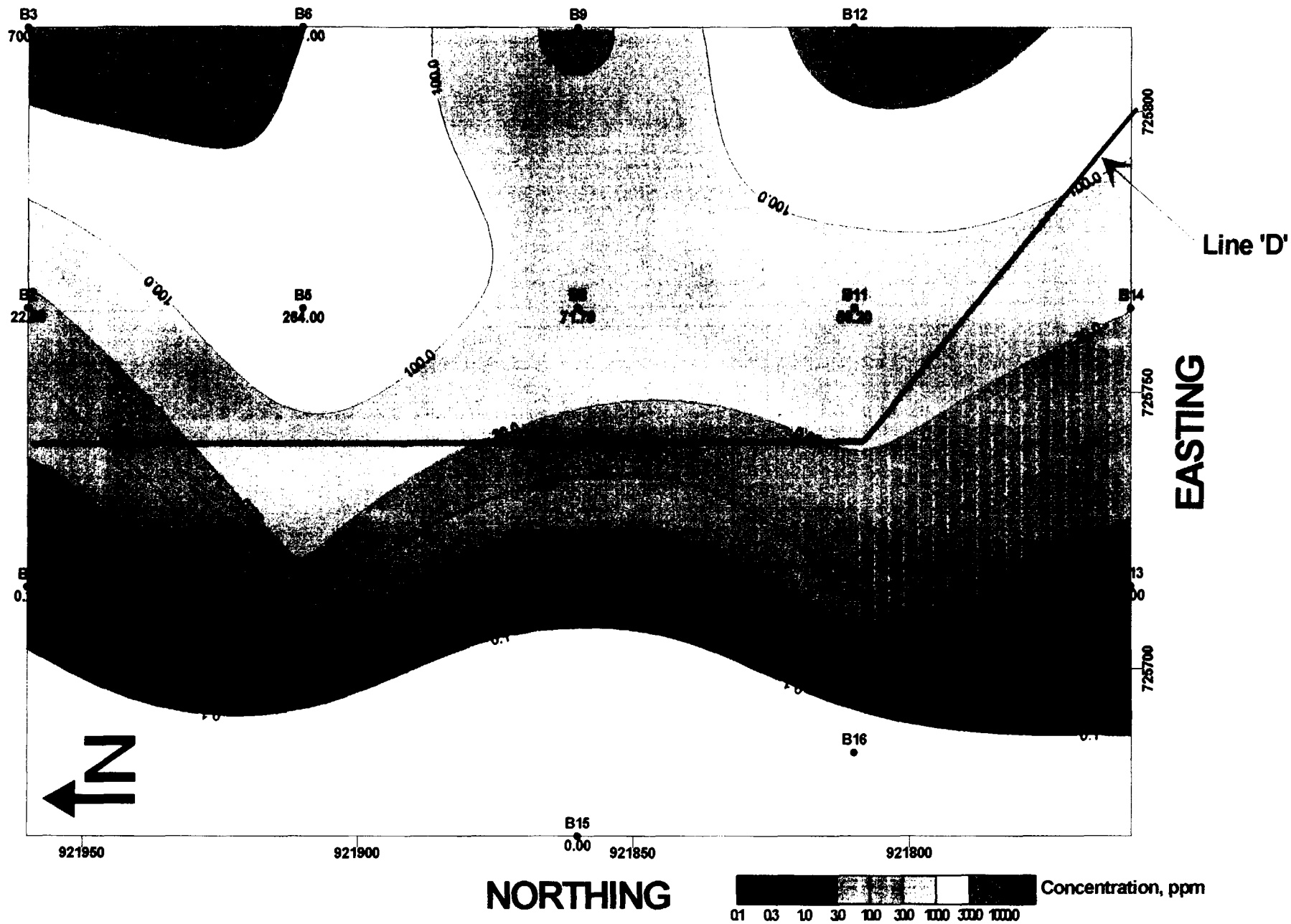


Concentration, ppm

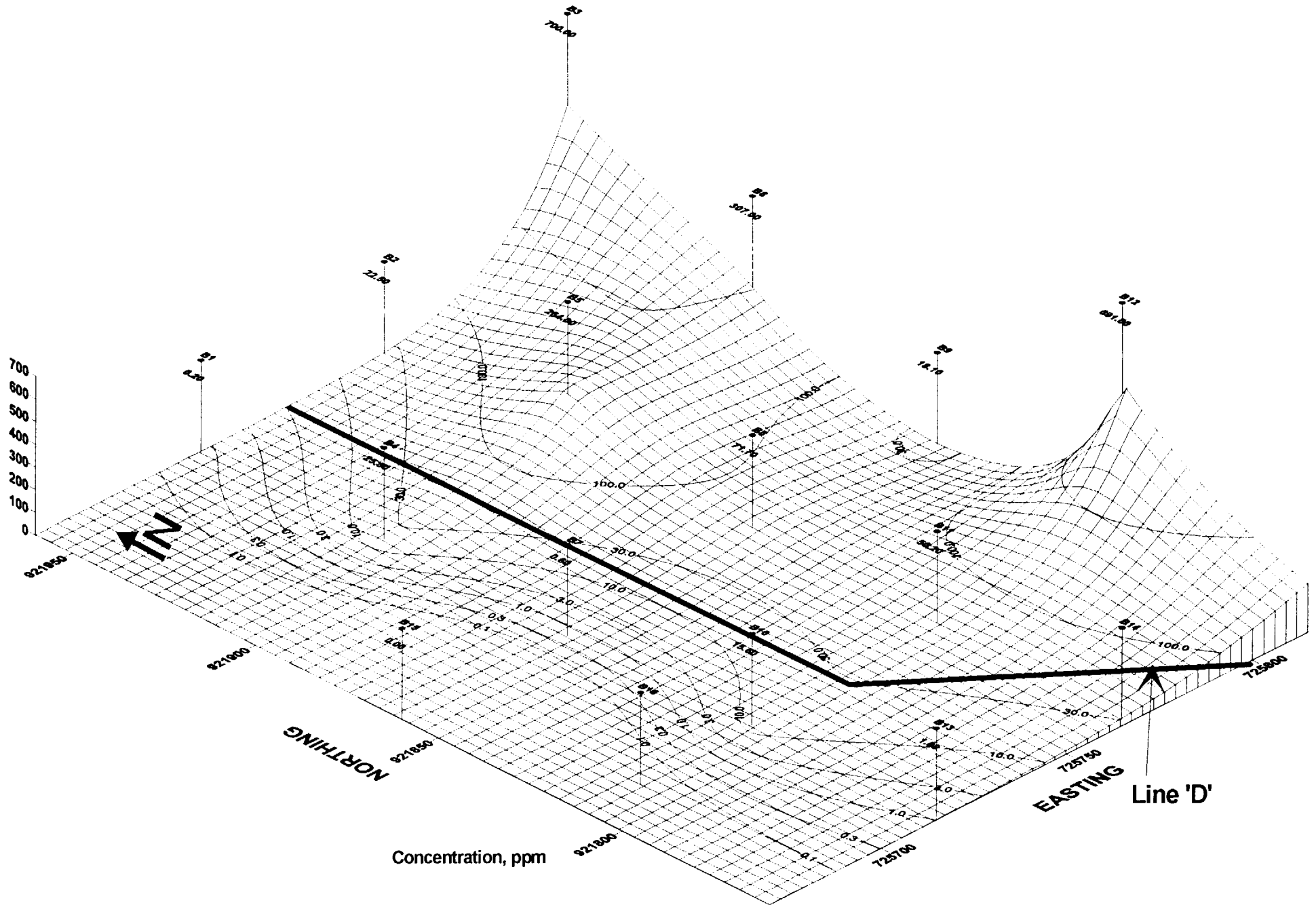


Central Support Zone Investigation (CSZI)

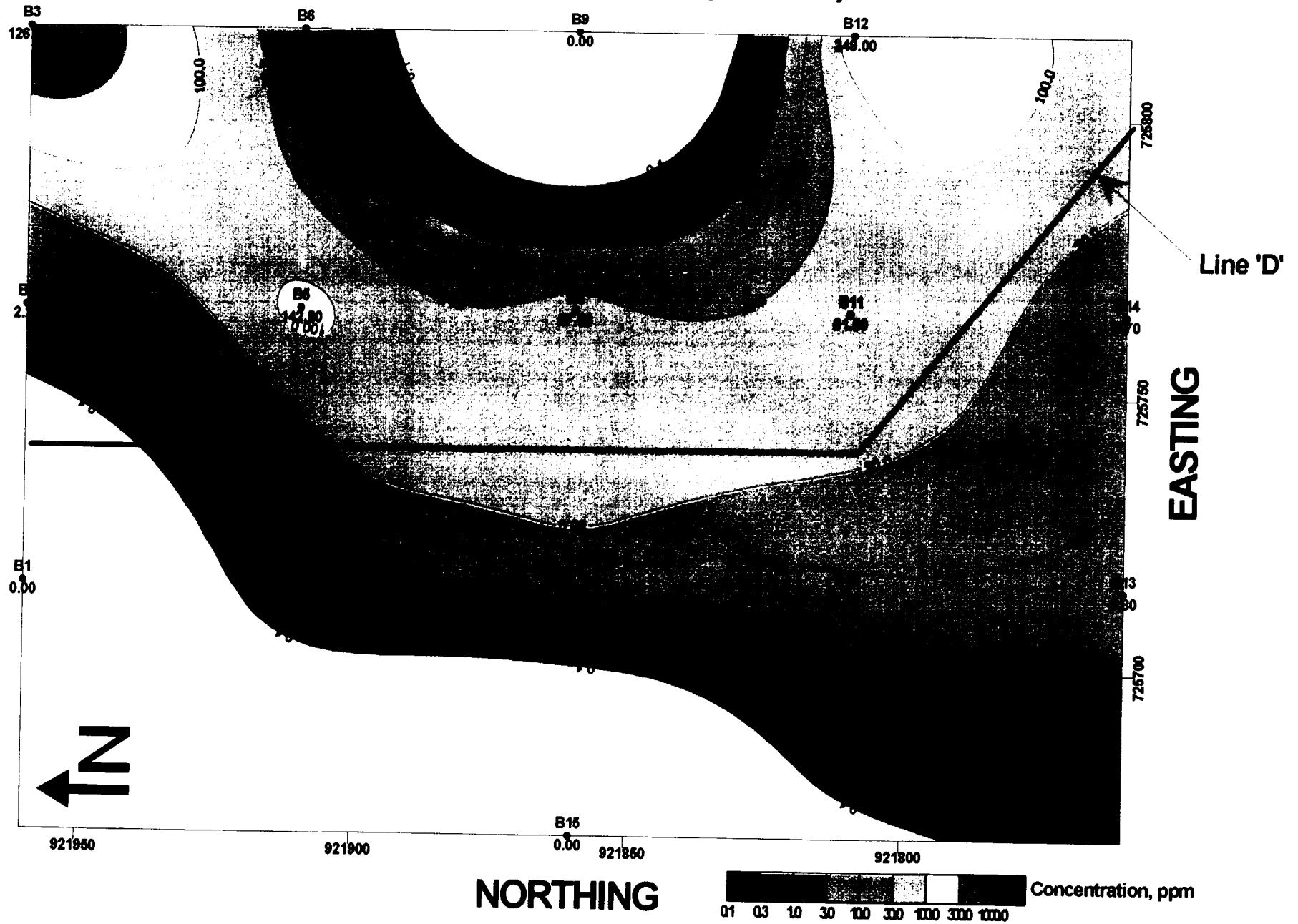
PID Readings, ppm (4 - 6 ft.)



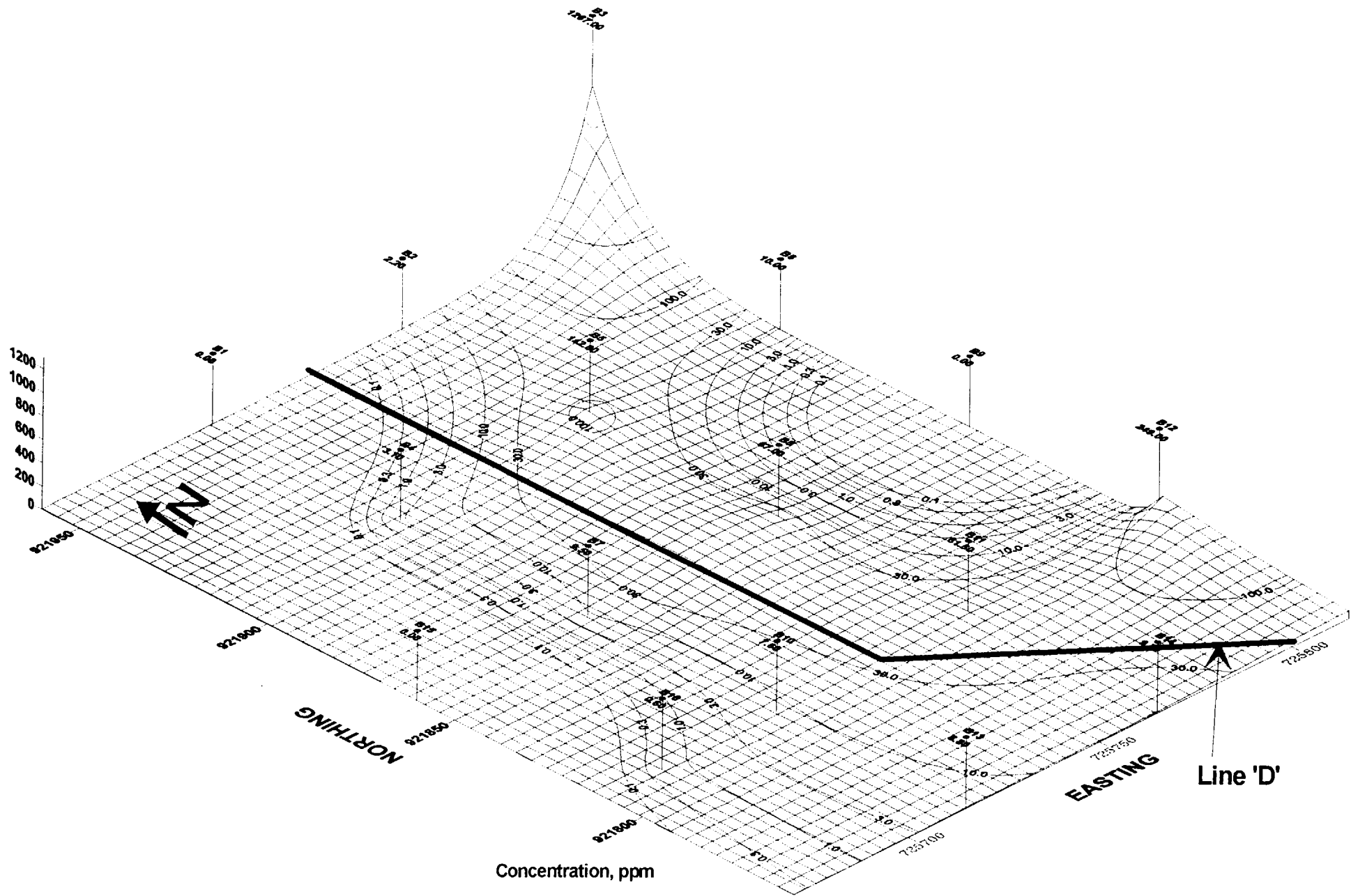
Central Support Zone Investigation (CSZI) PID Readings, ppm (4 - 6 ft.)



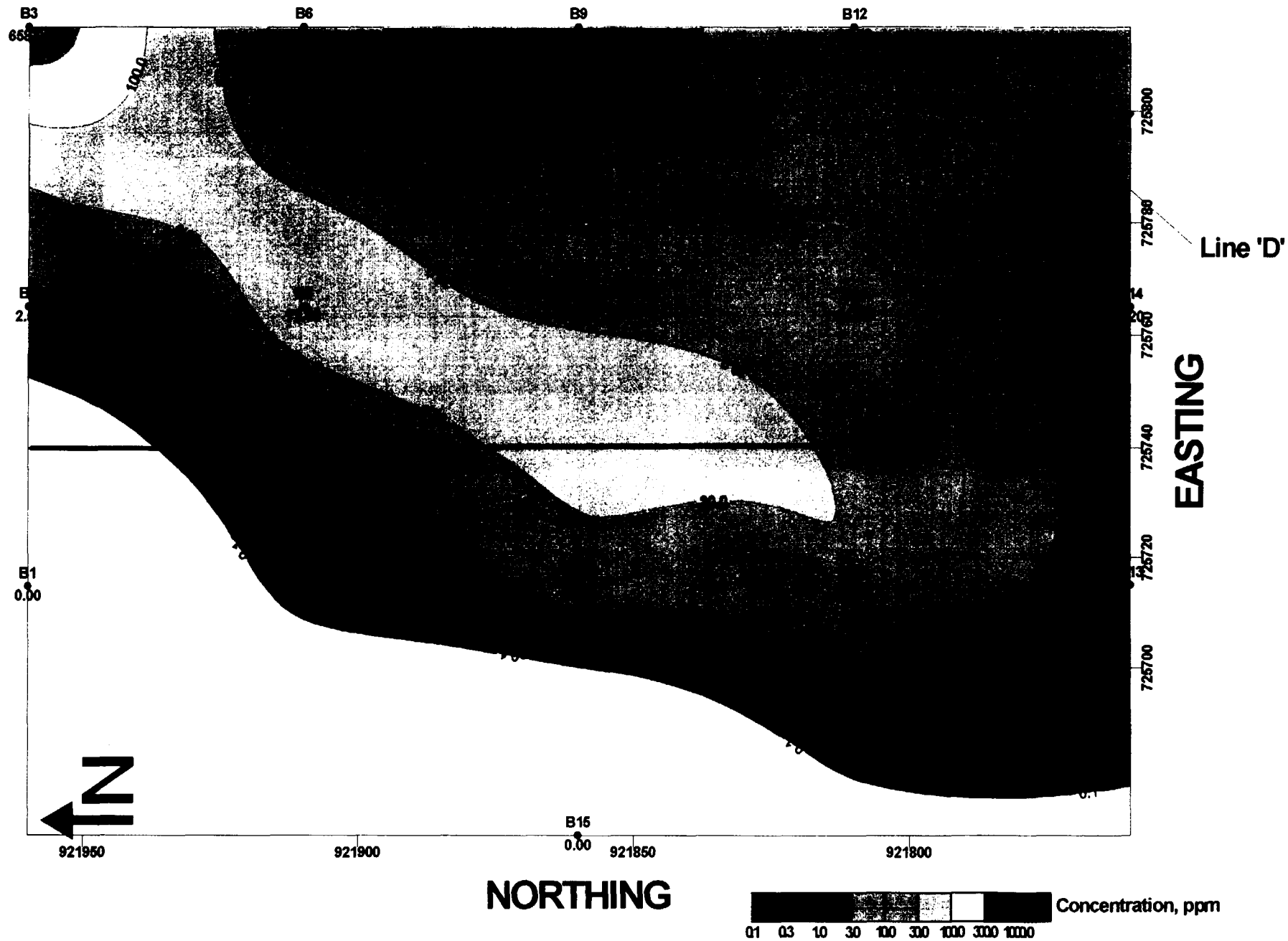
Enviro-Client Site
Central Support Zone Investigation (CSZI)
PID Readings, ppm (6 -8 ft.)



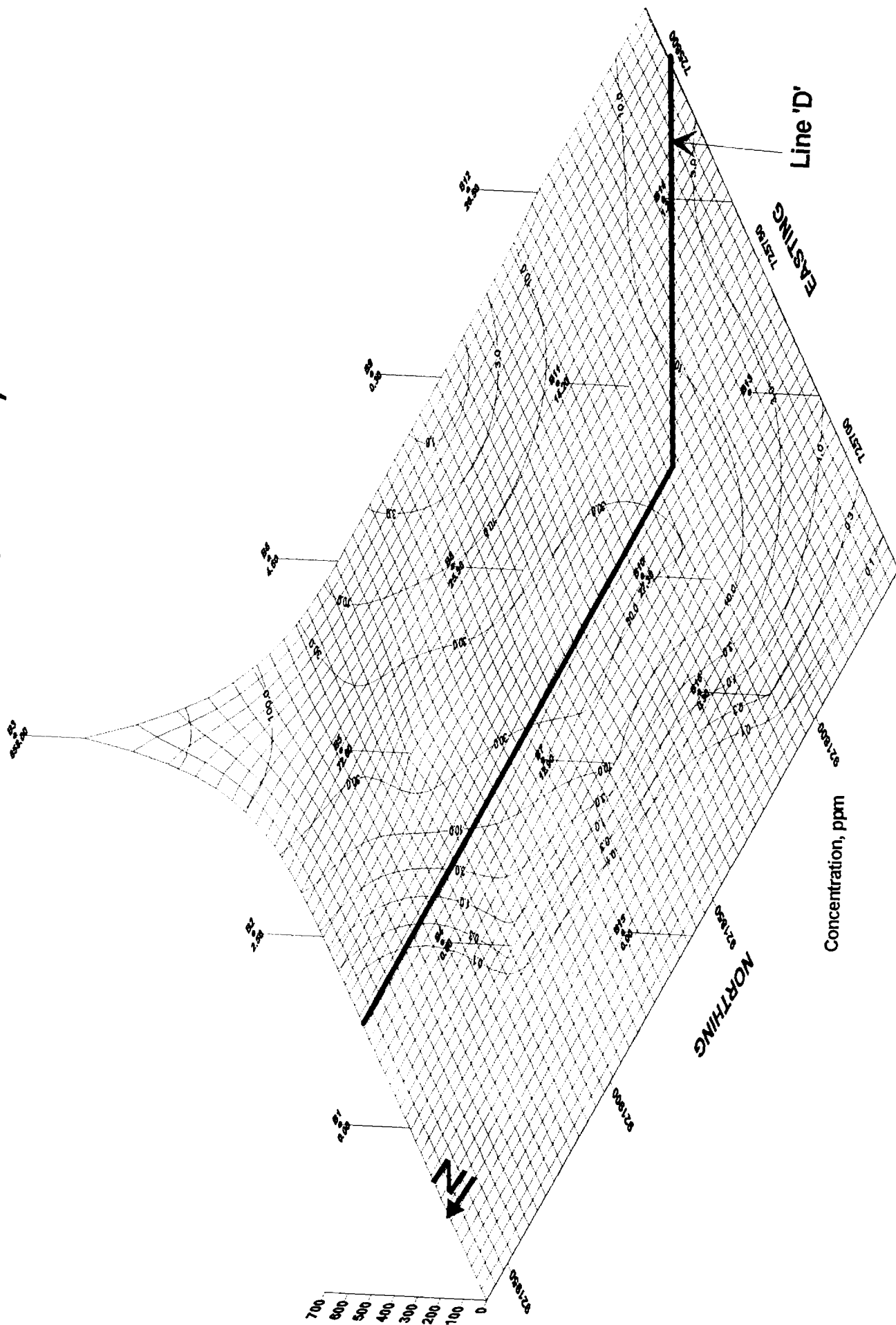
Central Support Zone Investigation (CSZI) PID Readings, ppm (6 - 8 ft.)



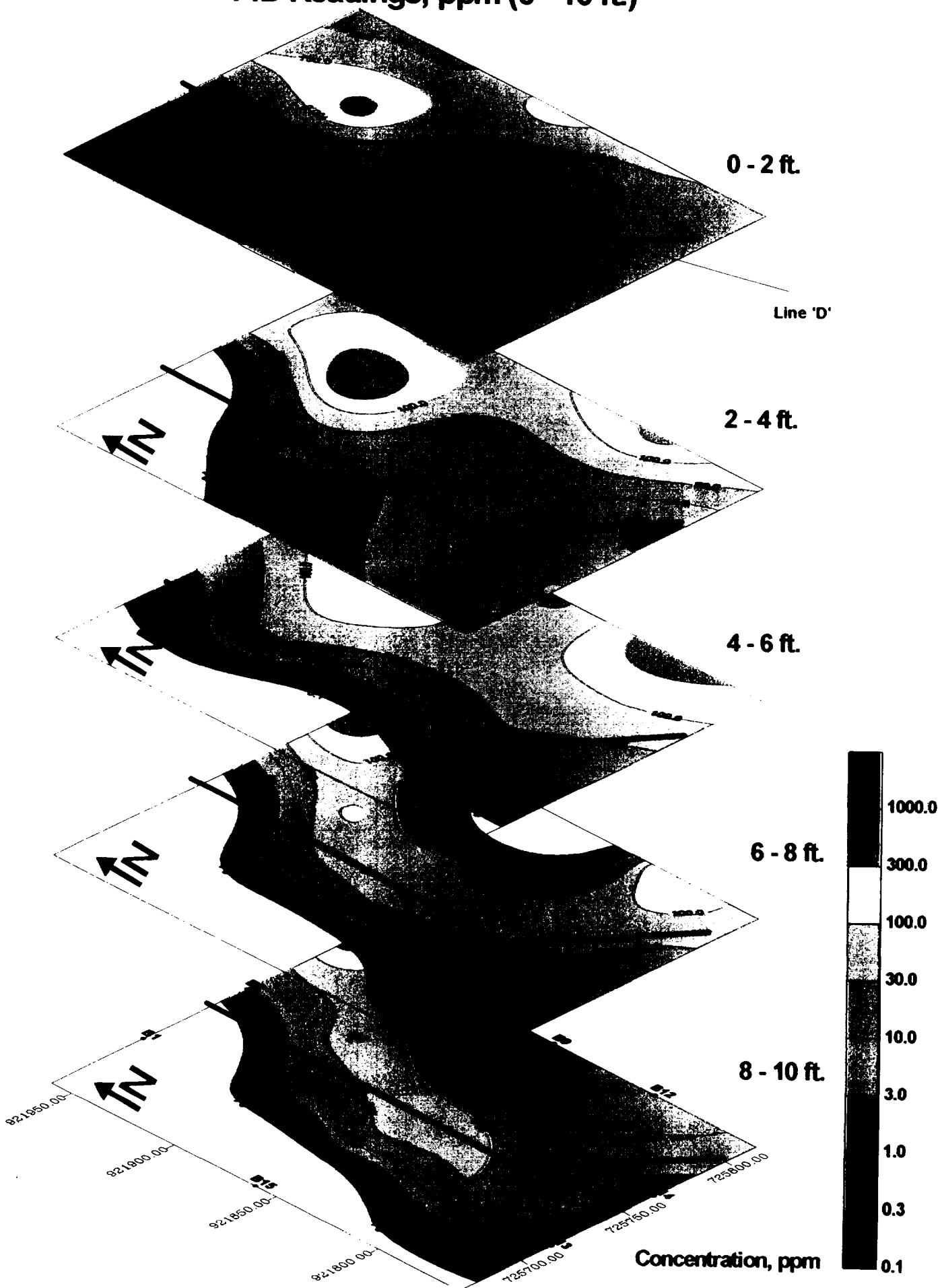
Central Support Zone Investigation (CSZI) PID Readings, ppm (8 - 10 ft.)



Central Support Zone Investigation (CSZI) PID Readings, ppm (8 - 10 ft.)

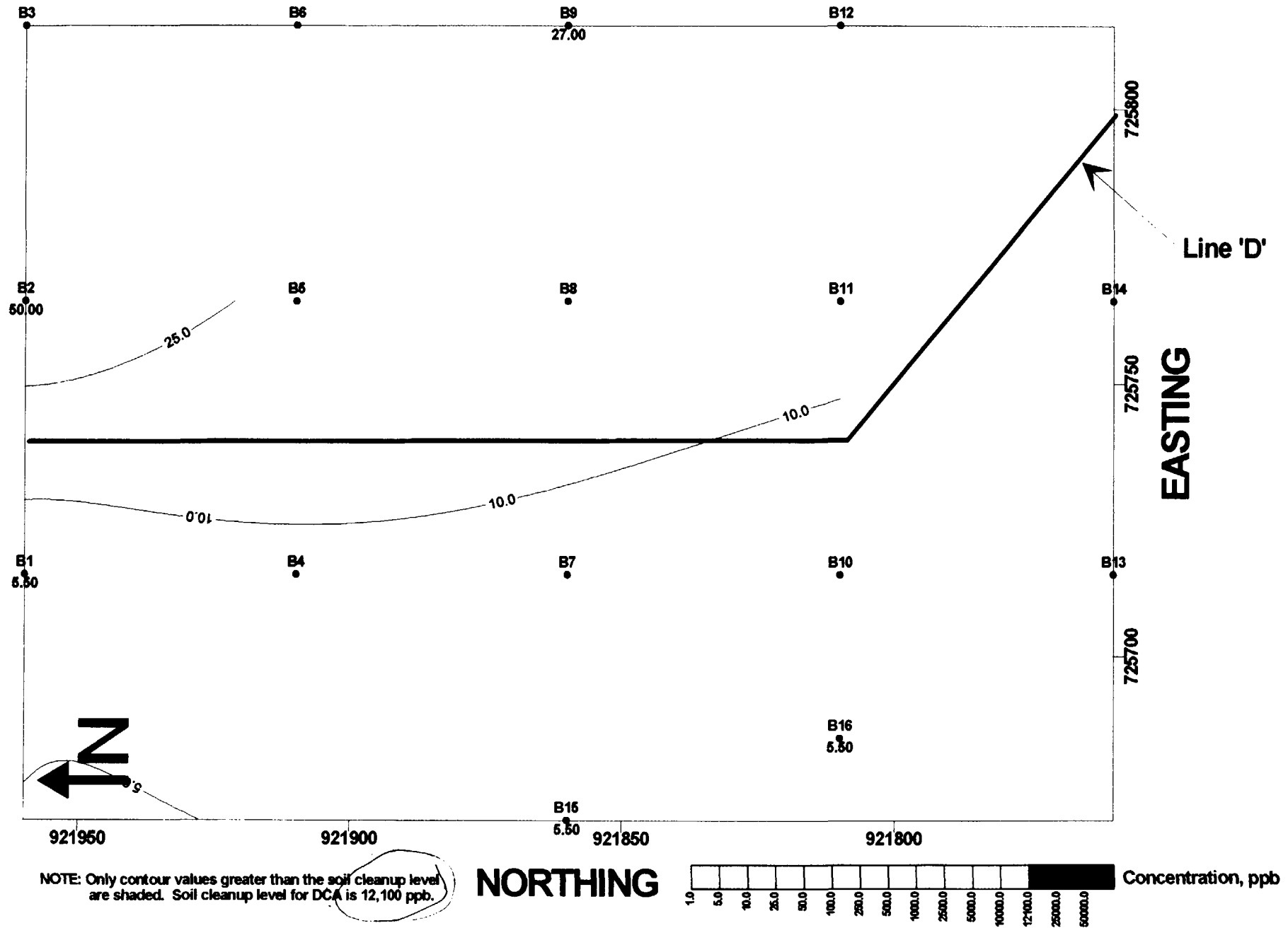


**Enviro-Chem Site
Central Support Zone Investigation (CSZI)
PID Readings, ppm (0 - 10 ft.)**



Central Support Zone Investigation (CSZI) 1,1 - Dichloroethane Results, ppb (0 - 2 ft.)

unclassified



A Horizon

	VALUE USED FOR GRAPHING			VALUE REPORTED		
	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene
B1	5.5 (2)	5.5 (2)	5.5 (2)	11.0 U	11.0 U	11.0 U
B2	50.0 J	250.0	1600.0	50.0 J	250.0	1600.0
B3						
B4						
B5						
B6						
B7						
B8						
B9	27.0 (2)	56.0	75.0	54.0 U	56.0	75.0
B10						
B11						
B12						
B13						
B14						
B15	5.5 (2)	5.5 (2)	5.5 (2)	11.0 U	11.0 U	11.0 U
B16	5.5 (2)	5.5 (2)	3.0 J	11.0 U	11.0 U	3.0 J
(NO CODE)	Shaded cells indicate no sample taken.					
U	Confirmed identification					
R	Not detected. The associated number indicates approximate sample concentration necessary to be detected.					
N	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.					
J	Presumptively present.					
UJ	Analyte present. Reported value may not be accurate or precise.					
NJ	Not detected. Quantitation limit may be inaccurate or imprecise.					
(1)	Presumptively present at an estimated concentration.					
(2)	Eliminated from data set. Detection limit is above cleanup objective.					
	1/2 of reported detection limit. Detection limit is at or below cleanup objective.					

B Horizon

	VALUE USED FOR GRAPHING			VALUE REPORTED		
	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene
B1						
B2						
B3						
B4						
B5	1350.0 (2)	570.0 J	33000.0	2700.0 U	570.0 J	33000.0
B6						
B7						
B8						
B9						
B10						
B11						
B12	950.0 (2)	27000.0	3200.0	1900.0 U	27000.0	3200.0
B13	28.0 (2)	28.0 (2)	28.0 (2)	56.0 U	56.0 U	56.0 U
B14	42.0	34.0	12.5 (2)	42.0	34.0	25.0 U
B15						
B16						
(NO CODE)	Shaded cells indicate no sample taken.					
U	Confirmed identification					
R	Not detected. The associated number indicates approximate sample concentration necessary to be detected.					
N	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.					
J	Presumptively present.					
UJ	Analyte present. Reported value may not be accurate or precise.					
NJ	Not detected. Quantitation limit may be inaccurate or imprecise.					
(1)	Presumptively present at an estimated concentration.					
(2)	Eliminated from data set. Detection limit is above cleanup objective.					
	1/2 of reported detection limit. Detection limit is at or below cleanup objective.					

C Horizon

	VALUE USED FOR GRAPHING			VALUE REPORTED		
	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene
B1						
B2						
B3	190.0 J	(1)	160.0 J	190.0 J	1500.0 U	160.0 J
B4	5.5 (2)	5.5 (2)	5.5 (2)	11.0 U	11.0 U	11.0 U
B5	1400.0 (2)	910.0 J	33000.0	2800.0 U	910.0 J	33000.0
B6	170.0	47.0 J	70.0 J	170.0	47.0 J	70.0 J
B7	6.0 (2)	6.0 (2)	6.0 (2)	12.0 U	12.0 U	12.0 U
B8	65.0 (2)	910.0	65.0 (2)	130.0 U	910.0	130.0 U
B9						
B10	6.5 (2)	9.0 J	6.5 (2)	13.0 U	9.0 J	13.0 U
B11	750.0 (2)	3100.0	(1)	1500.0 U	3100.0	1500.0 U
B12	700.0 (2)	220.0 J	(1)	1400.0 U	220.0 J	1400.0 U
B13						
B14						
B15						
B16						
(NO CODE)	Shaded cells indicate no sample taken.					
U	Confirmed identification					
R	Not detected. The associated number indicates approximate sample concentration necessary to be detected.					
N	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.					
J	Presumptively present.					
UJ	Analyte present. Reported value may not be accurate or precise.					
NJ	Not detected. Quantitation limit may be inaccurate or imprecise.					
(1)	Presumptively present at an estimated concentration.					
(2)	Eliminated from data set. Detection limit is above cleanup objective.					
	1/2 of reported detection limit. Detection limit is at or below cleanup objective.					

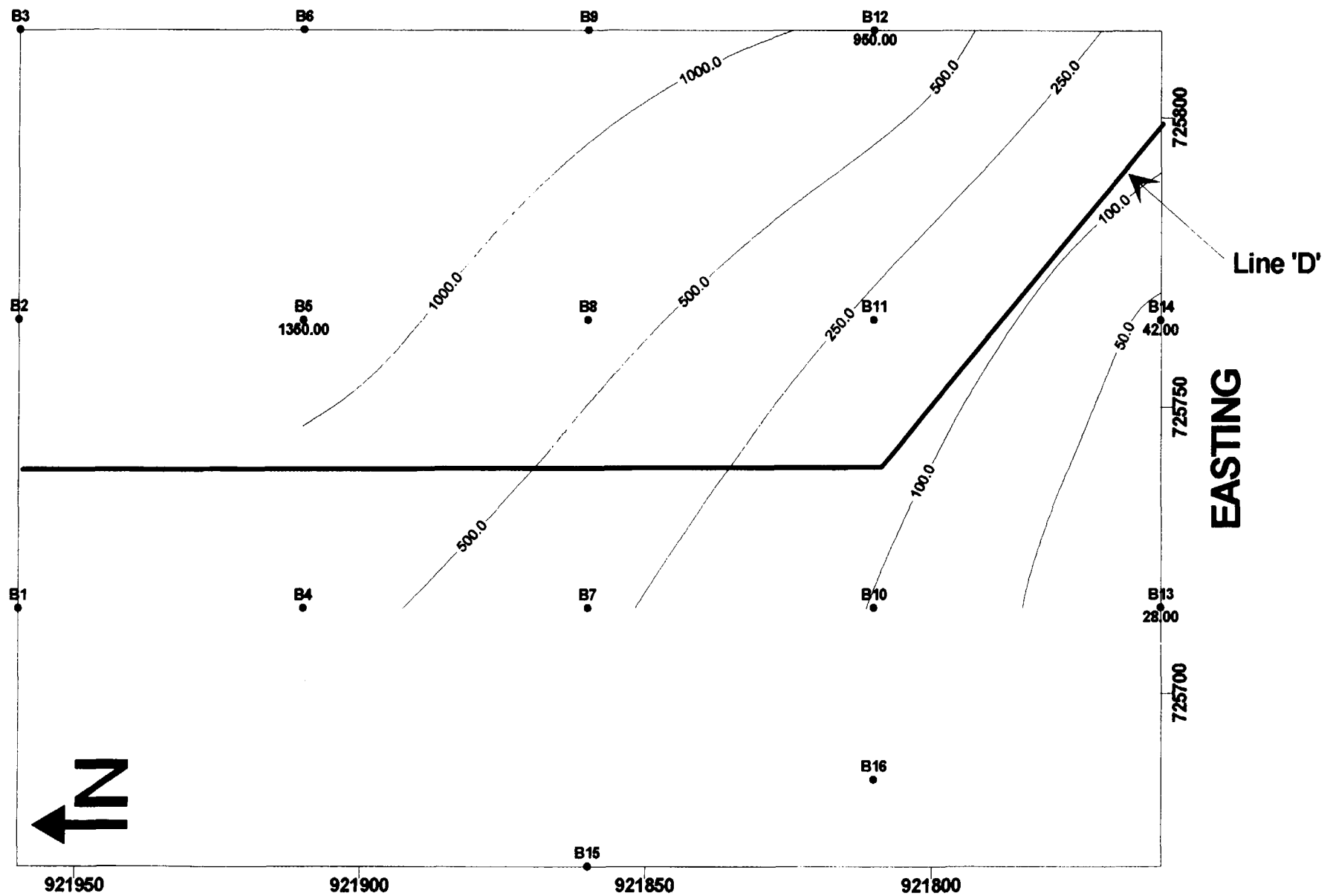
D Horizon

	VALUE USED FOR GRAPHING			VALUE REPORTED		
	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene
B1						
B2						
B3	240.0 J	1300.0 J	1600.0	240.0 J	1300.0 J	1600.0
B4						
B5						
B6						
B7						
B8	2.0 J	440.0 J	65.0 (2)	2.0 J	440.0 J	130.0 U
B9	5.5 (2)	24.0	5.5 (2) J	11.0 U	24.0	11.0 UJ
B10						
B11	700.0 (2)	4600.0	(1)	1400.0 U	4600.0	1400.0 U
B12						
B13	6.0 (2)	6.0 (2)	6.0 (2)	12.0 U	12.0 U	12.0 U
B14	21.0	3.0 J	6.5 (2)	21.0	3.0 J	13.0 U
B15						
B16	6.5 (2)	6.5 (2)	6.5 (2)	13.0 U	13.0 U	13.0 U
(NO CODE)	Shaded cells indicate no sample taken.					
U	Confirmed identification					
R	Not detected. The associated number indicates approximate sample concentration necessary to be detected.					
N	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.					
J	Presumptively present.					
UJ	Analyte present. Reported value may not be accurate or precise.					
NJ	Not detected. Quantitation limit may be inaccurate or imprecise.					
(1)	Presumptively present at an estimated concentration.					
(2)	Eliminated from data set. Detection limit is above cleanup objective.					
	1/2 of reported detection limit. Detection limit is at or below cleanup objective.					

E Horizon

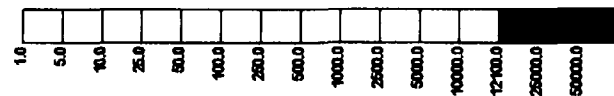
	VALUE USED FOR GRAPHING			VALUE REPORTED		
	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene	1,1 Dichloroethane	Trichloroethene	Tetrachloroethene
B1	6.0 (2)	2.0 J	6.0 (2)	12.0 U	2.0 J	12.0 U
B2	5.5 (2)	5.5 (2)	12.0	11.0 U	11.0 U	12.0
B3						
B4	5.5 (2)	5.5 (2)	5.5 (2)	11.0 U	11.0 U	11.0 U
B5						
B6	6.0 J	2.0 J	2.0 J	6.0 J	2.0 J	2.0 J
B7	39.0	3.0 J	5.5 (2)J	39.0	3.0 J	11.0 UJ
B8						
B9						
B10	700.0 (2)	(1)	(1)	1400.0 U	1400.0 U	1400.0 U
B11						
B12						
B13						
B14						
B15	6.5 (2)	2.0 J	6.5 (2)	13.0 U	2.0 J	13.0 U
B16						
(NO CODE)	Shaded cells indicate no sample taken.					
U	Confirmed identification					
R	Not detected. The associated number indicates approximate sample concentration necessary to be detected.					
N	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.					
J	Presumptively present.					
UJ	Analyte present. Reported value may not be accurate or precise.					
NJ	Not detected. Quantitation limit may be inaccurate or imprecise.					
(1)	Presumptively present at an estimated concentration.					
(2)	Eliminated from data set. Detection limit is above cleanup objective.					
	1/2 of reported detection limit. Detection limit is at or below cleanup objective.					

Central Support Zone Investigation (CSZI) 1,1 - Dichloroethane Results, ppb (2 - 4 ft.)



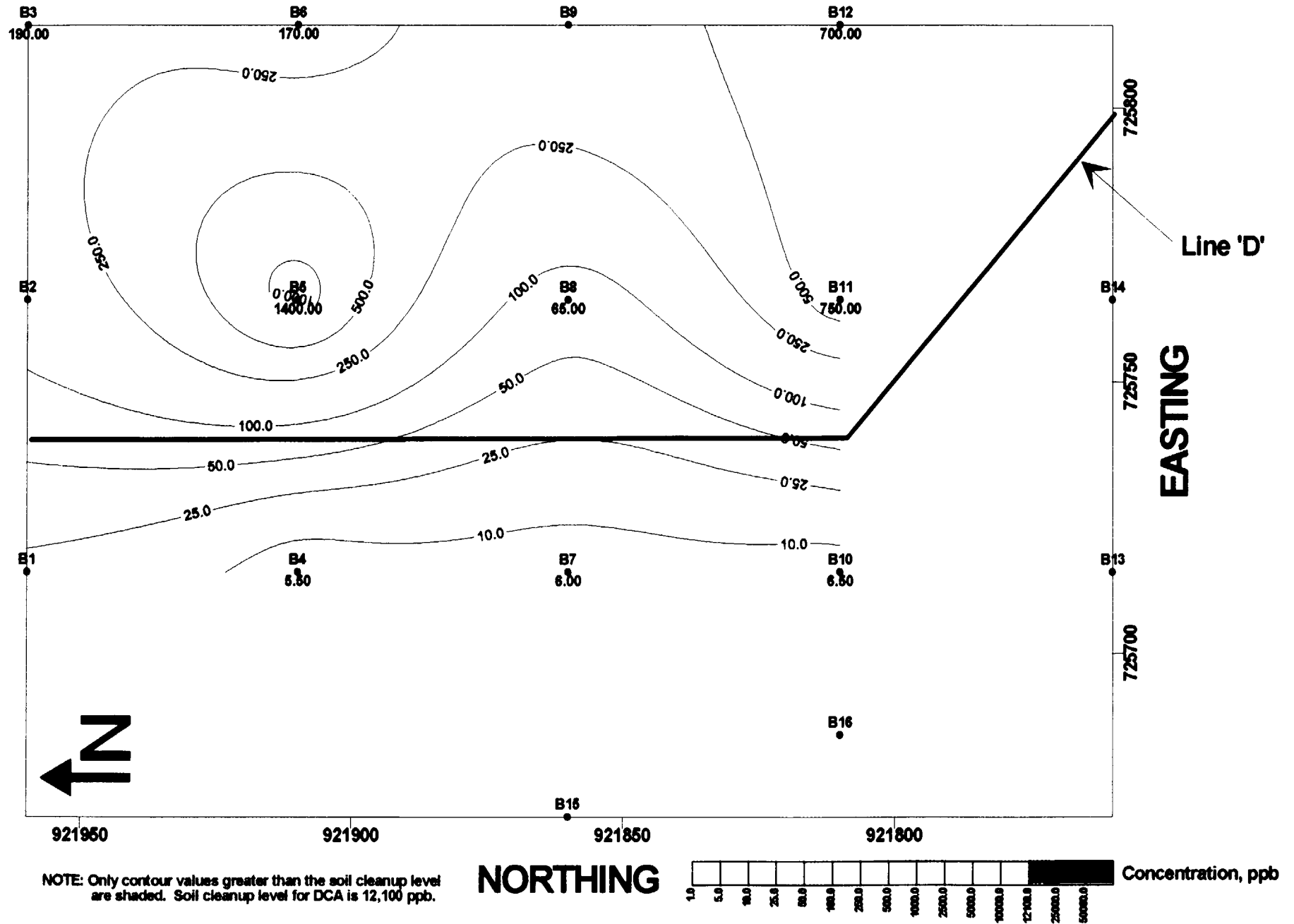
NOTE: Only contour values greater than the soil cleanup level are shaded. Soil cleanup level for DCA is 12,100 ppb.

NORTHING

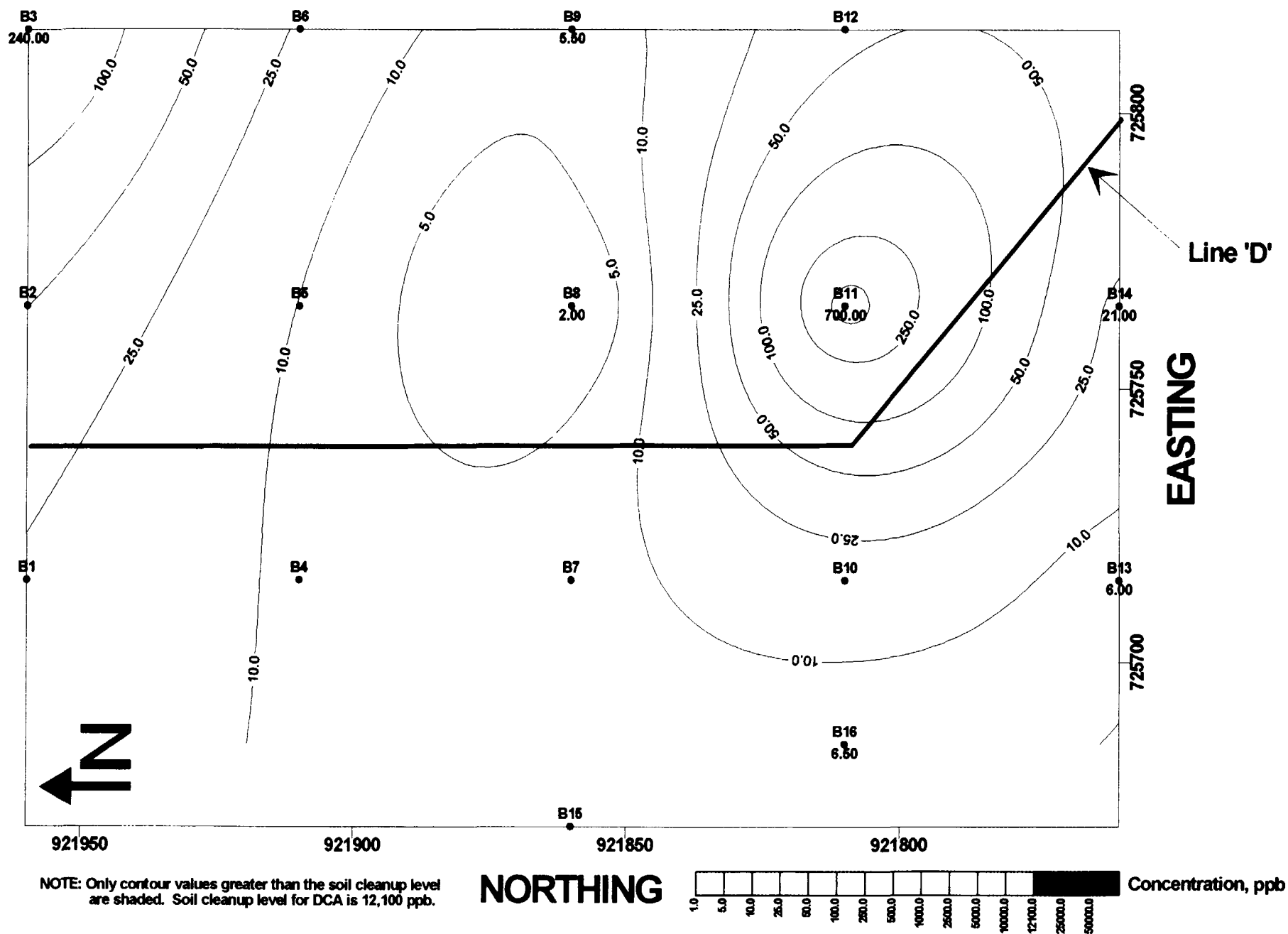


Concentration, ppb

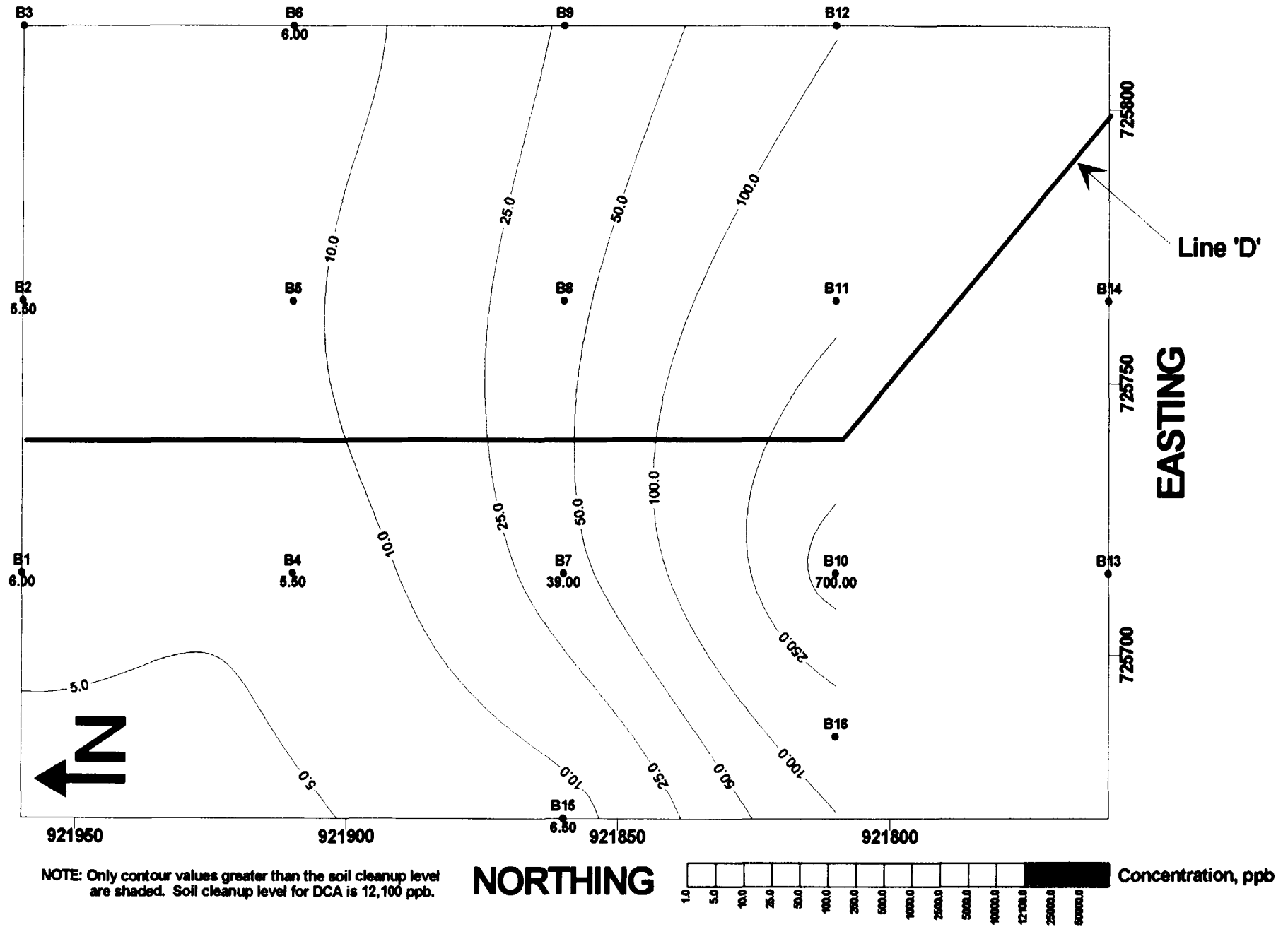
Central Support Zone Investigation (CSZI) 1,1 - Dichloroethane Results, ppb (4 - 6 ft.)



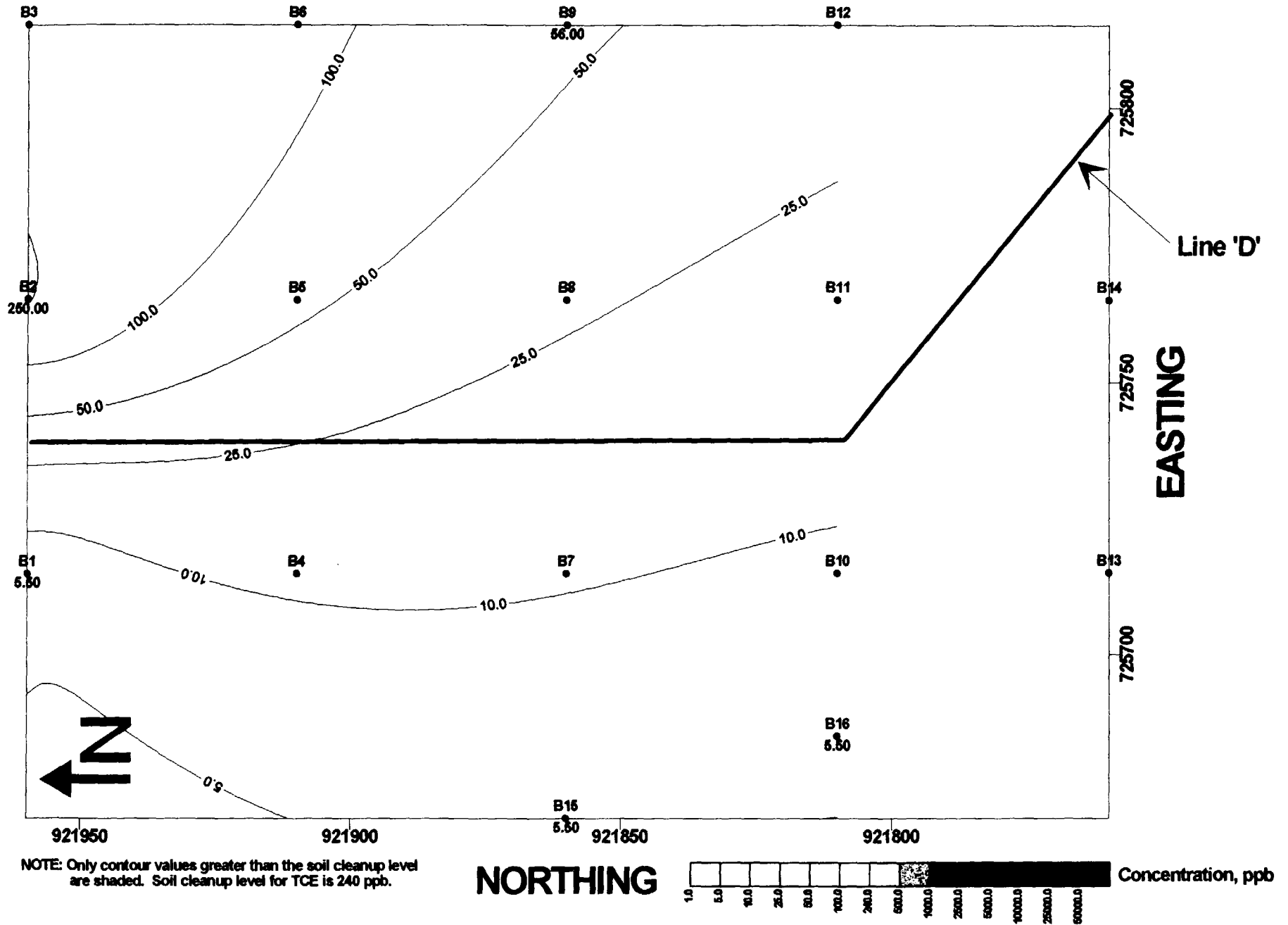
Central Support Zone Investigation (CSZI)
1,1 - Dichloroethane Results, ppb (6 - 8 ft.)



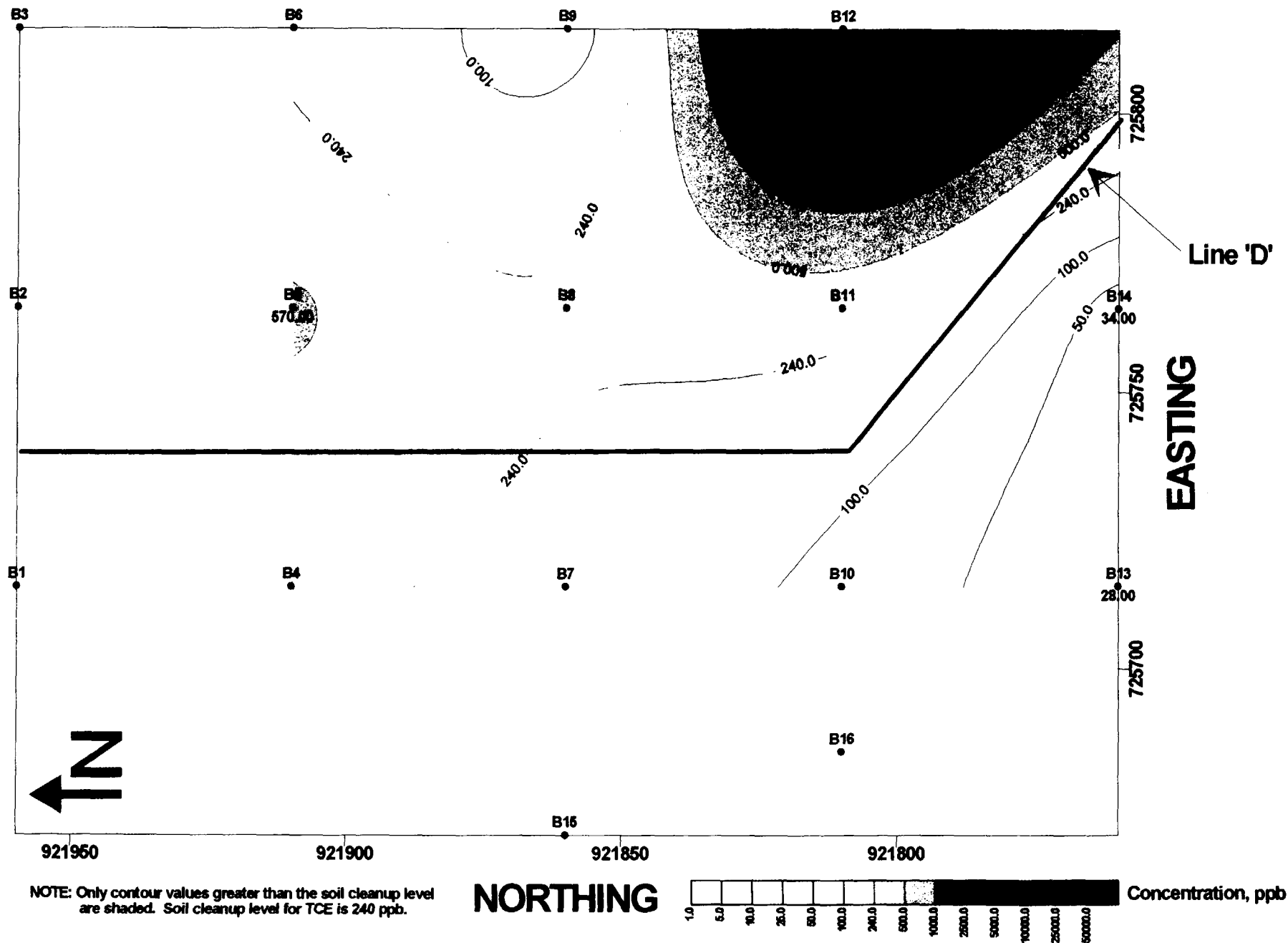
Central Support Zone Investigation (CSZI) 1,1 - Dichloroethane Results, ppb (8 - 10 ft.)



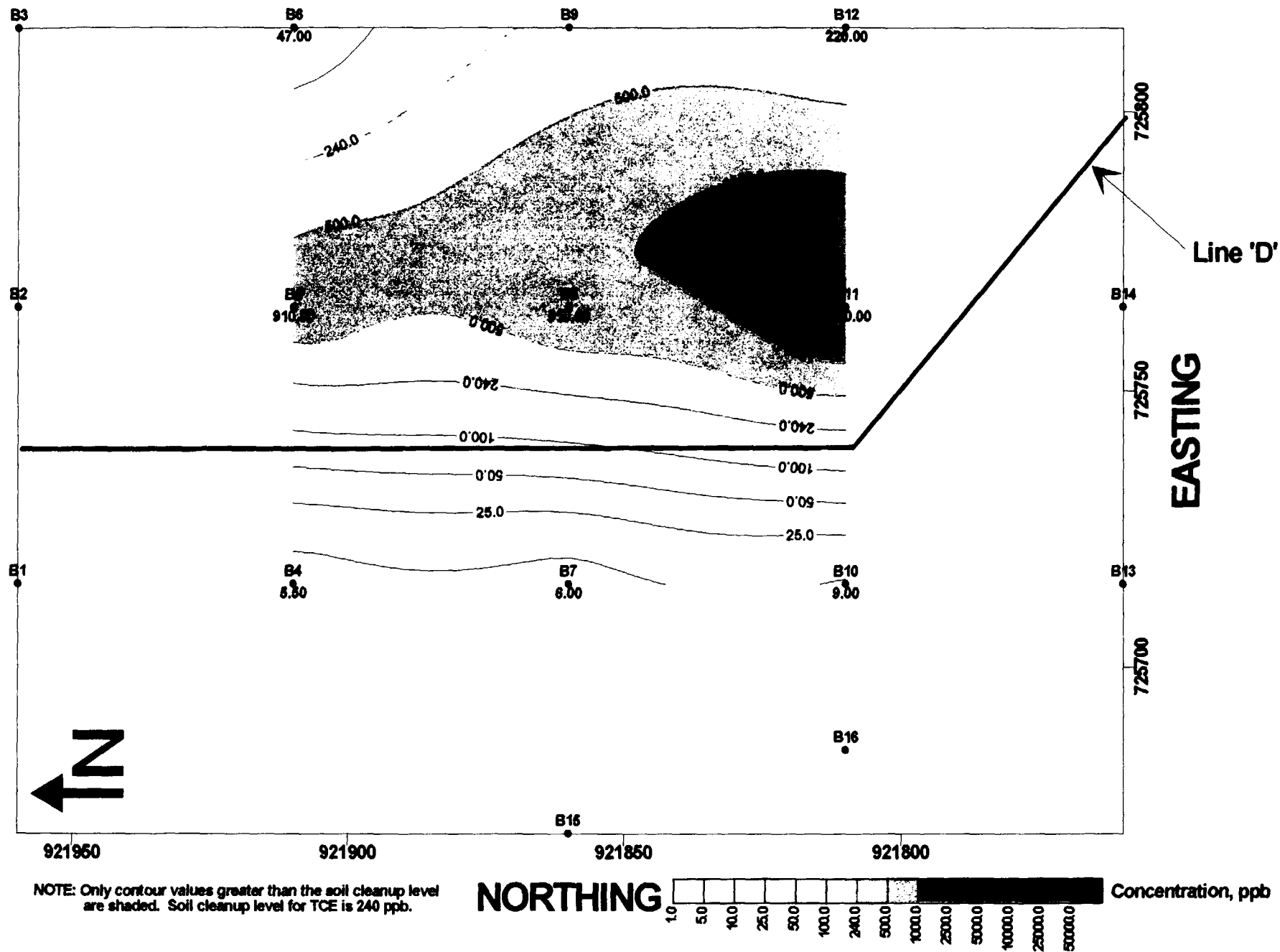
Central Support Zone Investigation (CSZI) Trichloroethene Results, ppb (0 - 2 ft.)



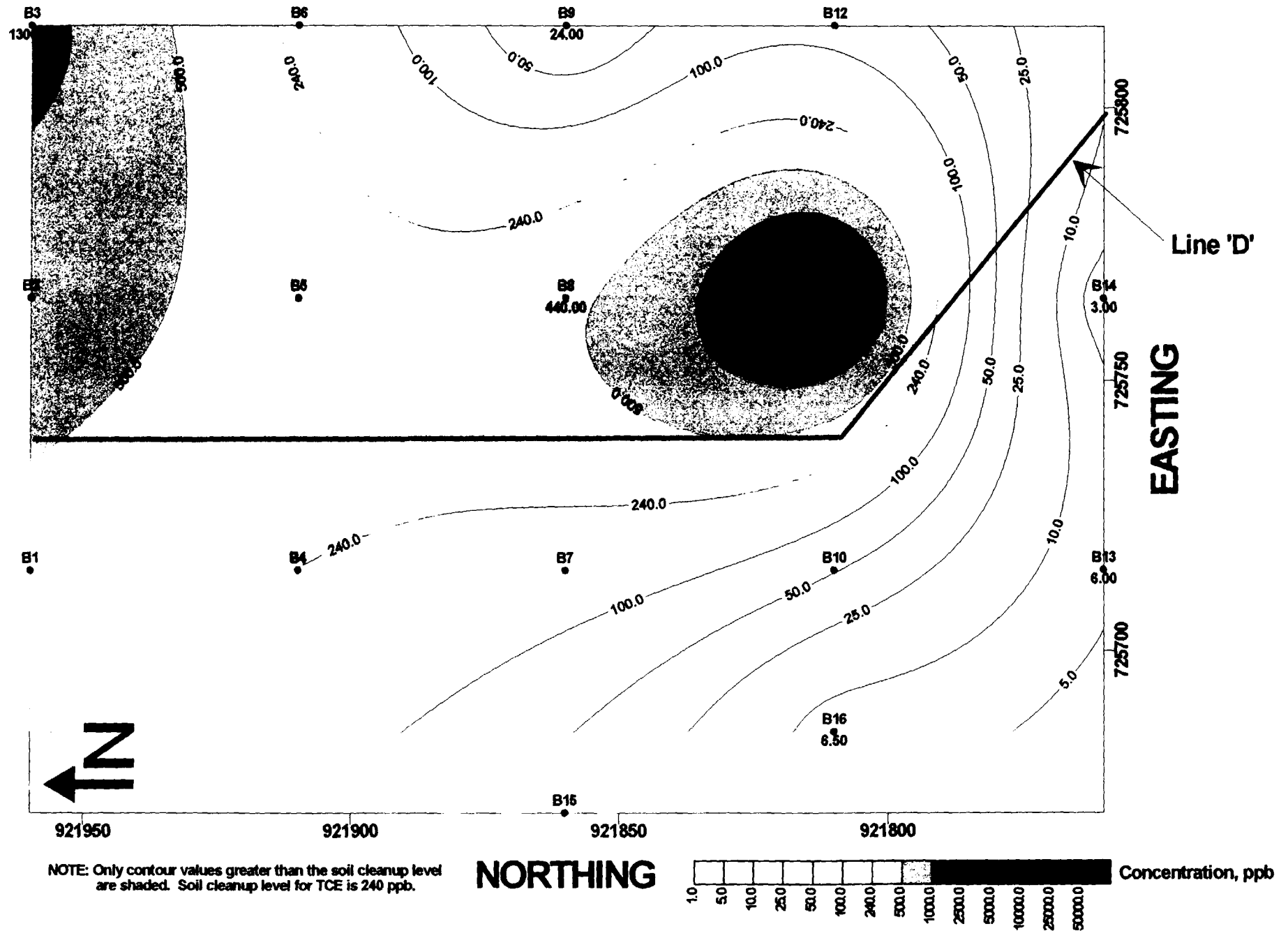
Central Support Zone Investigation (CSZI) Trichloroethene Results, ppb (2 - 4 ft.)



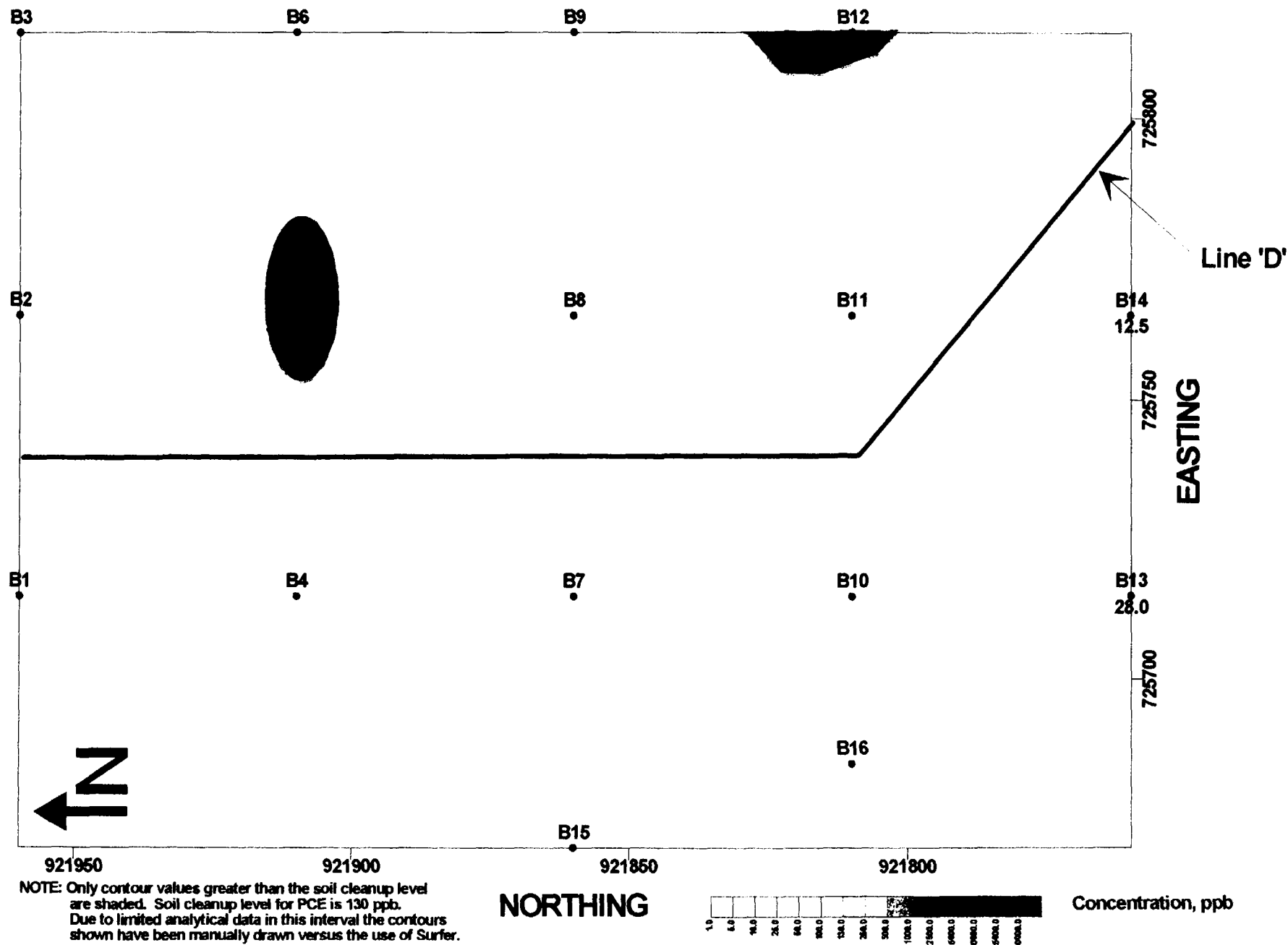
Central Support Zone Investigation (CSZI) Trichloroethene Results, ppb (4 - 6 ft.)



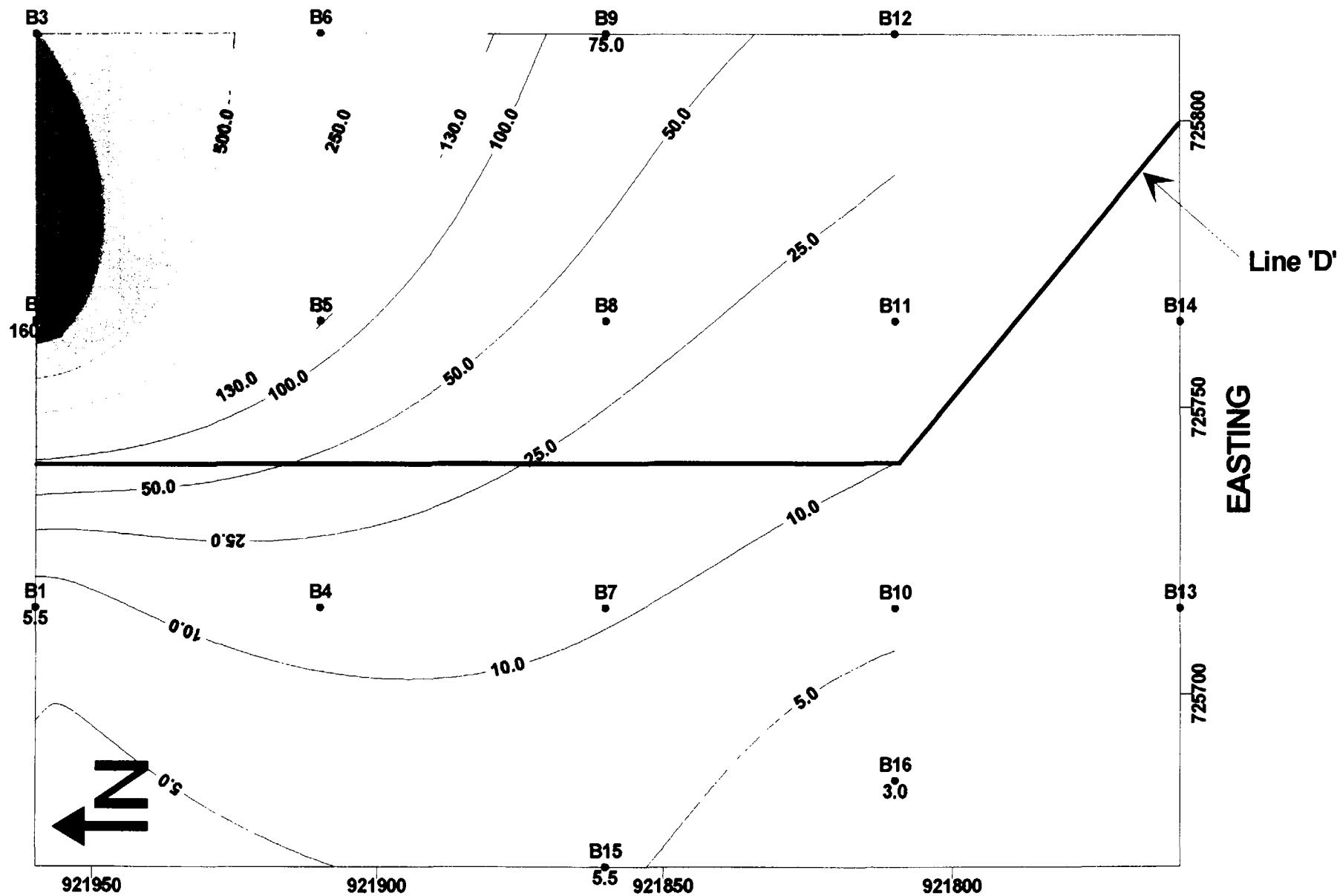
Central Support Zone Investigation (CSZI) Trichloroethene Results, ppb (6 - 8 ft.)



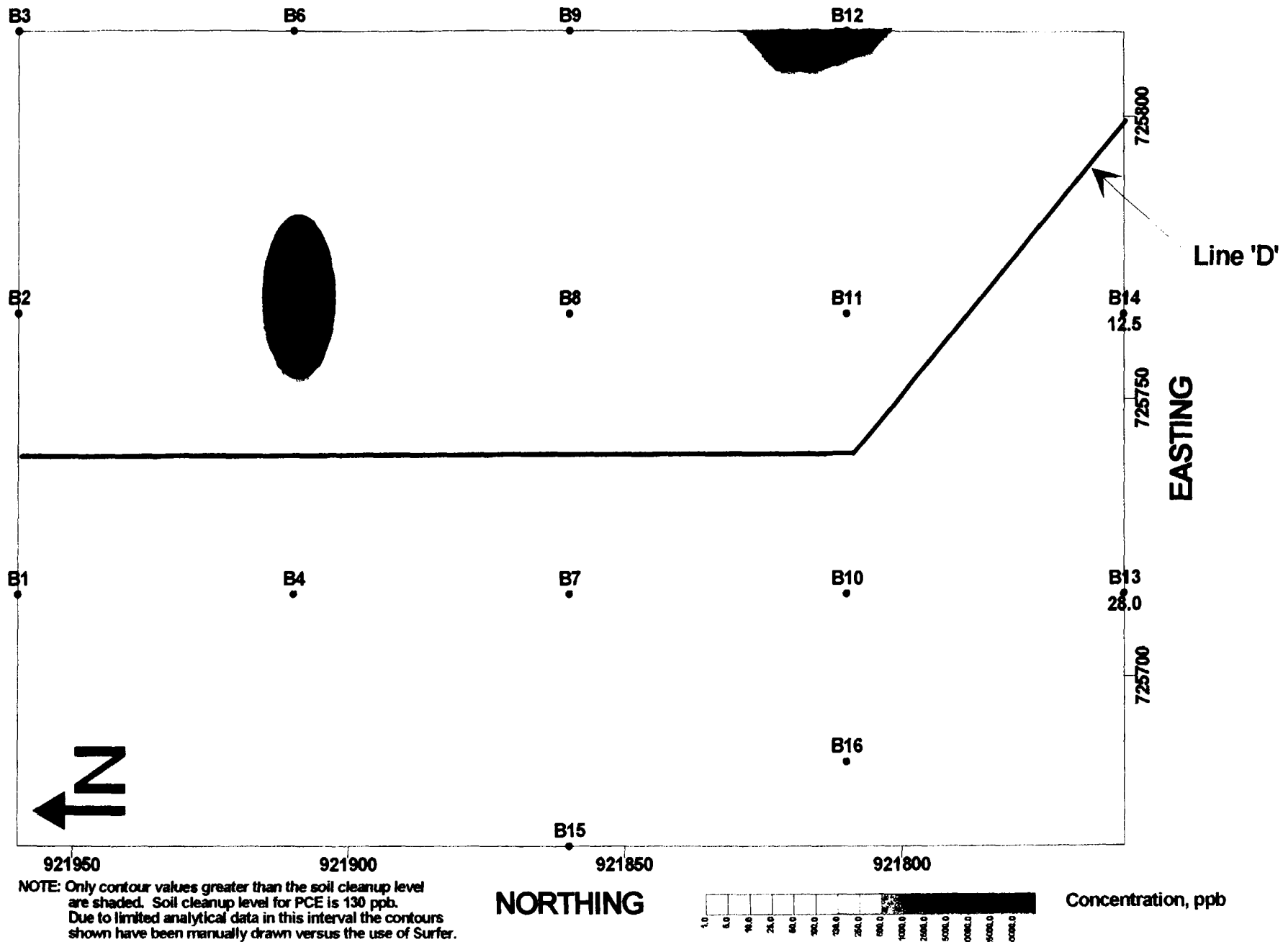
Central Support Zone Investigation (CSZI) Tetrachloroethene Results, ppb (2 - 4 ft.)



Central Support Zone Investigation (CSZI) Tetrachloroethene Results, ppb (0 - 2 ft.)



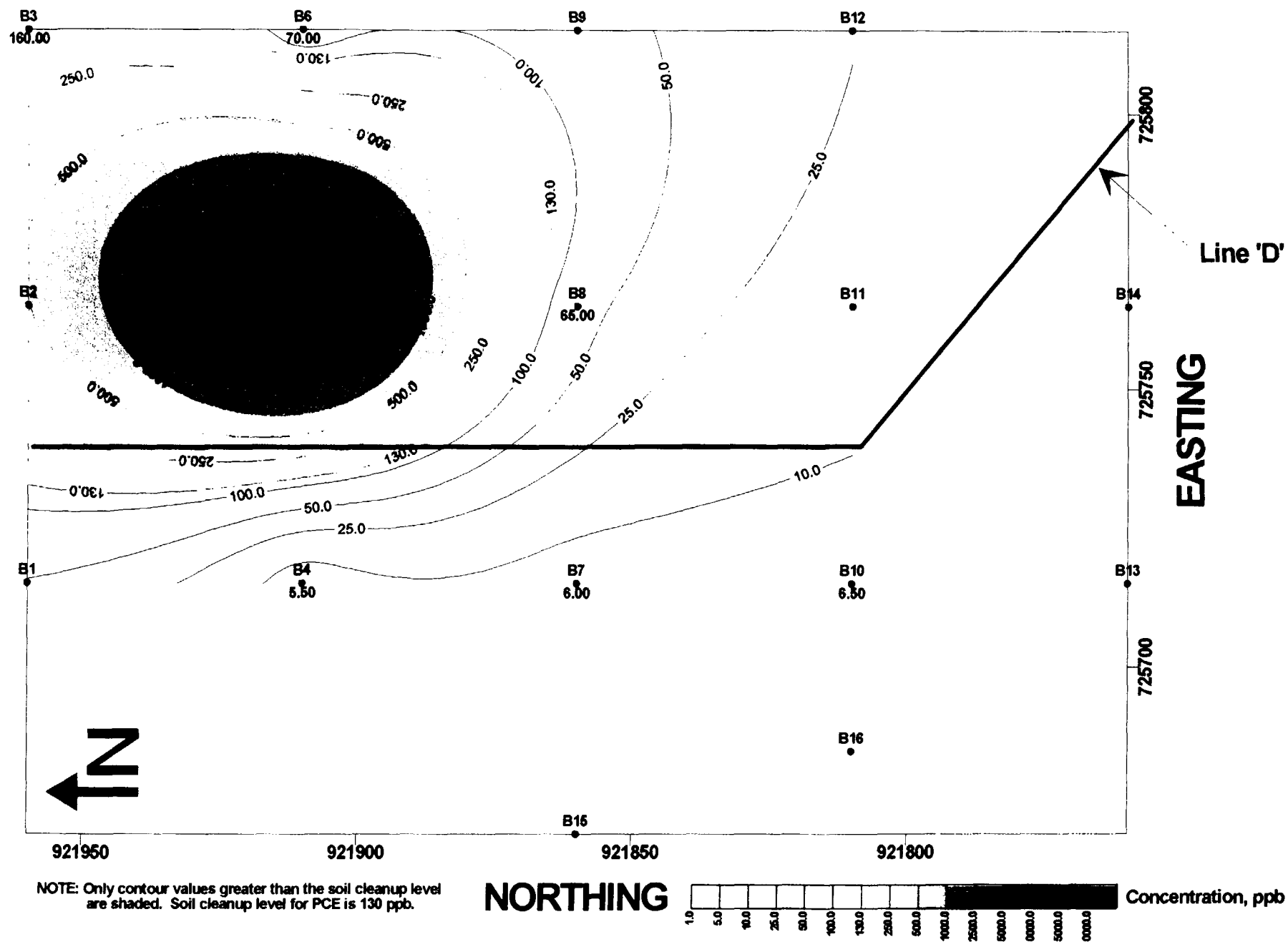
Central Support Zone Investigation (CSZI) Tetrachloroethene Results, ppb (2 - 4 ft.)



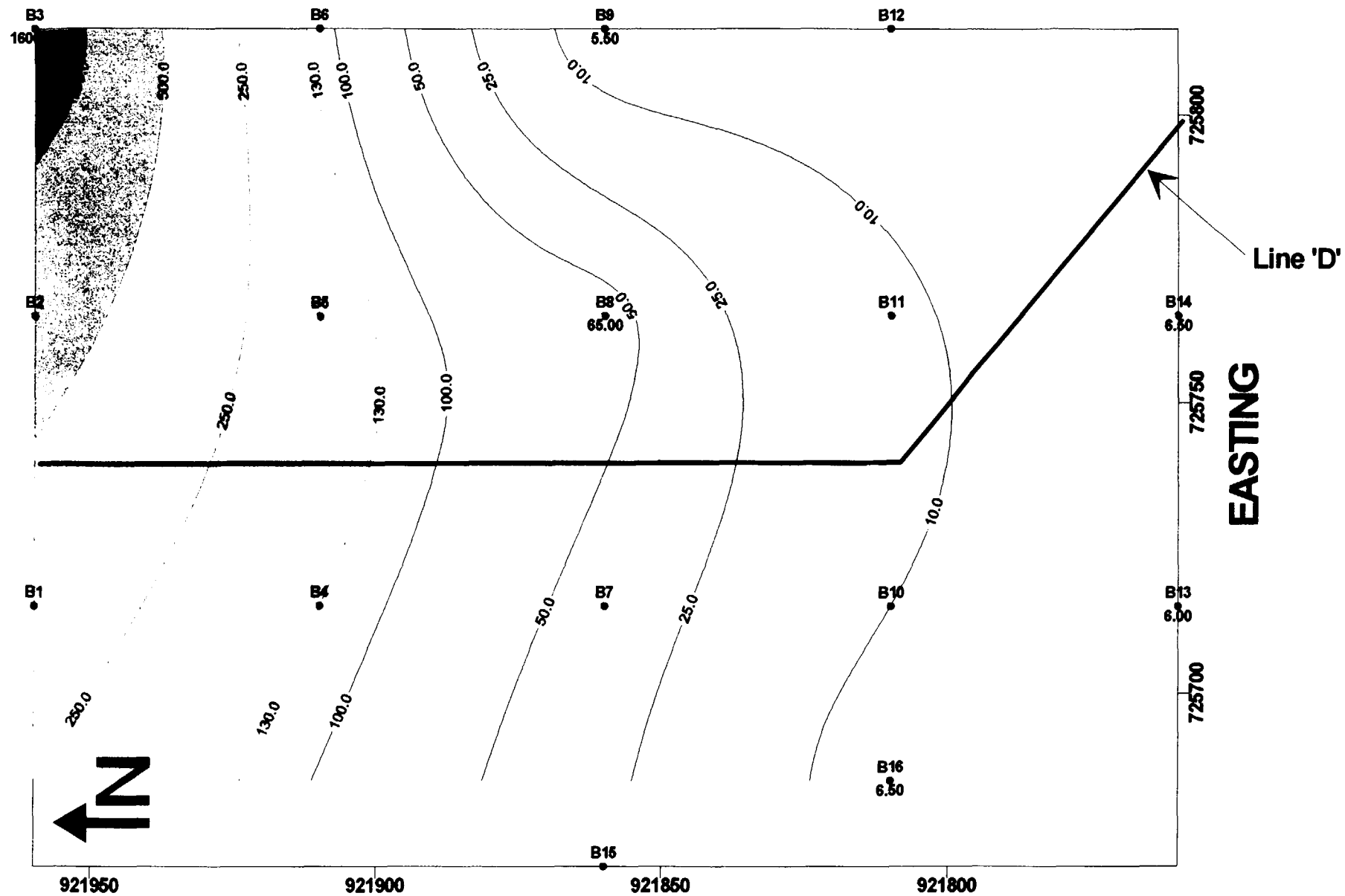
Enviro-Chem Site

Central Support Zone Investigation (CSZI)

Tetrachloroethene Results, ppb (4 - 6 ft.)

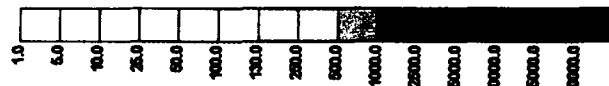


Central Support Zone Investigation (CSZI) Tetrachloroethene Results, ppb (6 - 8 ft.)



NOTE: Only contour values greater than the soil cleanup level are shaded. Soil cleanup level for PCE is 130 ppb.

NORTHING



Concentration, ppb

Enviro-Chem Site

Central Support Zone Investigation (CSZI)

Tetrachloroethene Results, ppb (8 - 10 ft.)

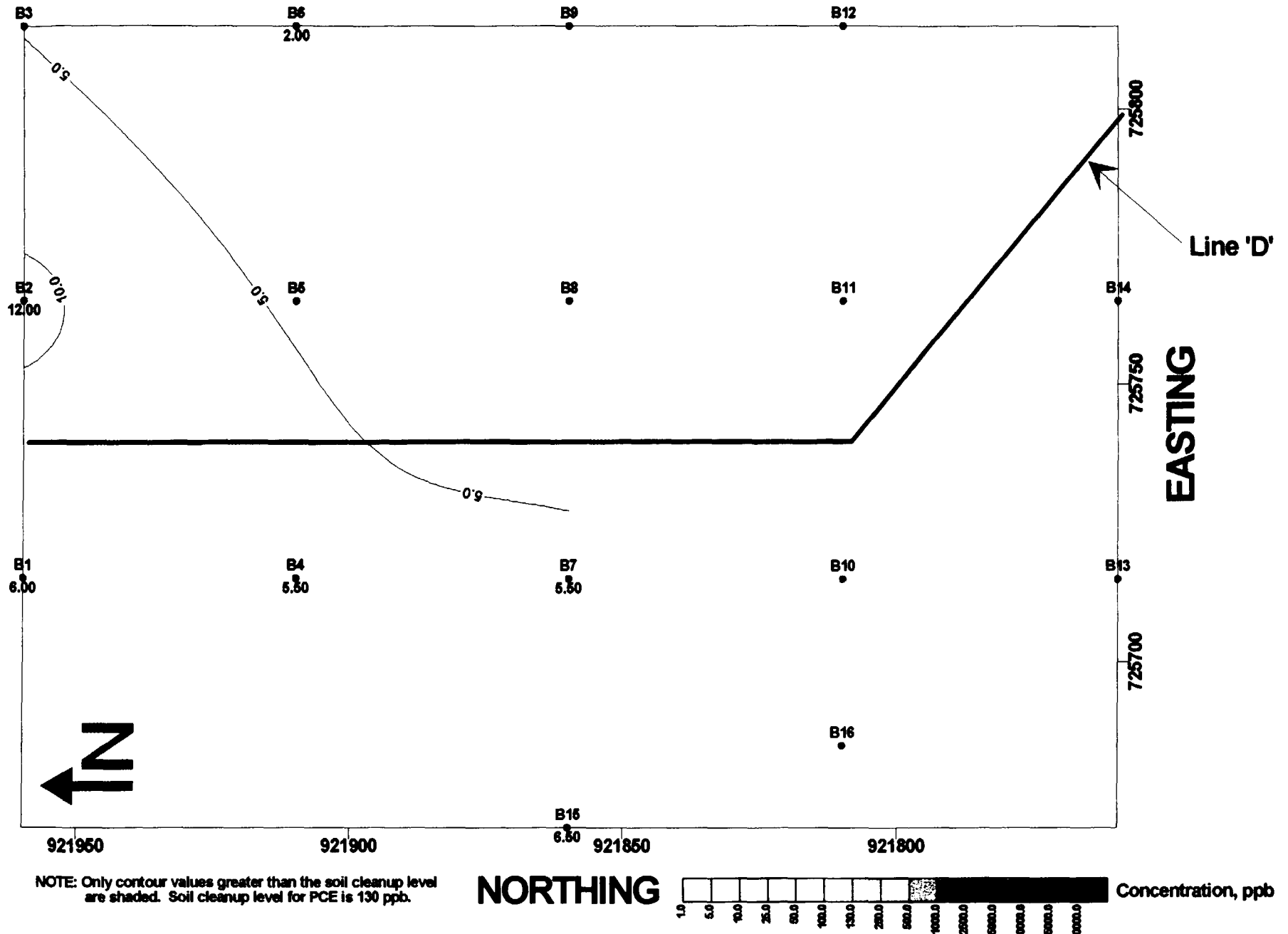


TABLE 2-1

**ENVIRO-CHEM SUPERFUND SITE
CENTRAL SUPPORT ZONE INVESTIGATION REPORT
SOIL BORING LOCATION COORDINATES ⁽¹⁾**

Soil Boring Number	Northing	Easting
B1	921960	725715
B2	921960	725765
B3	921960	725815
B4	921910	725715
B5	921910	725765
B6	921910	725815
B7	921860	725715
B8	921860	725765
B9	921860	725815
B10	921810	725715
B11	921810	725765
B12	921810	725815
B13		
B14		
B15		
B16		

NOTES:

1. Indiana State Plane Coordinate System
2. Borings B1 through B12 were field surveyed. Borings B13 through B16 were measured by tape and the locations are estimated as shown on Figure 2-1.

TABLE 2-2

**ENVIRO-CHEM SUPERFUND SITE
CENTRAL SUPPORT ZONE INVESTIGATION REPORT
TARGET SOIL CONCENTRATIONS
(Consent Decree, Exhibit A, Table 3-1)**

VOC	Soil Concentrations (µg/kg)	
	Exhibit A	Target (Exhibit A plus 25%)
Acetone	490	612.5
Chlorobenzene	10,100	12,625
Chloroform	2,300	2,875
1,1-Dichloroethane (DCA)	5.7	7.1
1,1-Dichloroethene (DCE)	120	150
Ethylbenzene	234,000	292,500
Methylene Chloride	20	25
Methyl Ethyl Ketone (MEK)	75	93.8
2-Butanone (MIBK)	8,900	11,125
Tetrachloroethene (PCE)	130	162.5
Toluene	238,000	297,500
1,1,1-Trichloroethane (TCA)	7,200	9,000
1,1,2-Trichloroethane (TCA)	22	27.5
Trichloroethene (TCE)	240	300
Total Xylenes	195,000	243,750

TABLE 3-1

**ENVIRO-CHEM SUPERFUND SITE
CENTRAL SUPPORT ZONE INVESTIGATION REPORT
VOC HEADSPACE ANALYSES**

Soil Boring	Headspace Sample	PID Reading (PPM)	Notes
B1	1A	1.5	Sent for lab analyses
	1B	0.0	
	1C	0.2	
	1D	0.0	Sent for lab analyses
	1D	0.0	
B2	2A	113.7	Sent for lab analyses
	2B	49.4	
	2C	22.5	
	2D	2.2	Sent for lab analyses
	2E	2.5	
B3	3A	10.6	Sent for lab analyses Sent for lab analyses
	3B	40.7	
	3C	700	
	3D	1,267	
	3E	658	
B4	4A	1.1	Sent for lab analyses Sent for lab analyses
	4B	4.5	
	4C	25.5	
	4D	3.1	
	4E	0.6	
B5	5A	529	Sent for lab analyses Sent for lab analyses
	5B	1,340	
	5C	264	
	5D	142.8	
	5E	72.6	
B6	6A	18.1	Sent for lab analyses Sent for lab analyses
	6B	33.5	
	6C	307	
	6D	10.0	
	6E	4.6	

TABLE 3-1

**ENVIRO-CHEM SUPERFUND SITE
CENTRAL SUPPORT ZONE INVESTIGATION REPORT
VOC HEADSPACE ANALYSES**

Soil Boring	Headspace Sample	PID Reading (PPM)	Notes
B7	7A	0.2	Sent for lab analyses
	7B	2.0	
	7C	0.6	
	7D	9.5	
	7E	12.9	
B8	8A	5.3	Sent for lab analyses
	8B	8.3	
	8C	71.7	
	8D	67.0	
	8E	25.3	
B9	9A	189	Sent for lab analyses
	9B	89	
	9C	18.1	
	9D	0.0	
	9E	0.3	
B10	10A	1.3	Sent for lab analyses
	10B	10.8	
	10C	15.6	
	10D	7.6	
	10E	27.3	
B11	11A	0.6	Sent for lab analyses
	11B	10.2	
	11C	50.2	
	11D	61.5	
	11E	14.2	
B12	12A	47.4	Sent for lab analyses
	12B	494	
	12C	691	
	12D	249	
	12E	28.5	

TABLE 3-1

**ENVIRO-CHEM SUPERFUND SITE
CENTRAL SUPPORT ZONE INVESTIGATION REPORT
VOC HEADSPACE ANALYSES**

Soil Boring	Headspace Sample	PID Reading (PPM)	Notes
B13	13A	20.0	Sent for lab analyses
	13B	36.6	
	13C	1.0	
	13D	6.8	Sent for lab analyses
	13E	---	No Sample (insufficient recovery)
B14	14A	---	No Sample (insufficient recovery)
	14B	1.2	Sent for lab analyses
	14C	AR	No Sample (auger refusal)
	14D	9.7	Sent for lab analyses
	14E	1.2	
B15	15A	5.3	Sent for lab analyses
	15B	0.6	
	15C	0.0	
	15D	0.0	
	15E	0.0	Sent for lab analyses
B16	16A	1.2	Sent for lab analyses
	16B	---	No Sample (insufficient recovery)
	16C	---	No Sample (suspected void zone)
	16D	0.6	Sent for lab analyses
	16E	0.3	

TABLE 3-2

**ENVIRO-CHEM SUPERFUND SITE
CENTRAL SUPPORT ZONE INVESTIGATION REPORT
SOIL SAMPLE INFORMATION SUMMARY
LABORATORY VOC TESTING**

Sample Number	Sample Location		Date		Notes
	Boring	Depth (Ft. BGS)	Sampled	Analyzed	
ECC-B01 ASL	B1	0-2	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B01 ESL	B1	8-10	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B02 ASL	B2	0-2	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B02 ESL	B2	8-10	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B03 CSL	B3	4-6	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B03 DSL	B3	6-8	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B04 CSL	B4	4-6	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B04 ESL	B4	8-10	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B05 BSL	B5	2-4	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B05 CSL	B5	4-6	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B06 CSL	B6	4-6	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B06 ESL	B6	8-10	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B07 CSL	B7	4-6	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B07 ESL	B7	8-10	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B08 CSL	B8	4-6	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B08 DSL	B8	6-8	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B09 ASL	B9	0-2	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B09 DSL	B9	6-8	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B10 CSL	B10	4-6	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B10 ESL	B10	8-10	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B11 CSL	B11	4-6	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B11 DSL	B11	6-8	7/11/95	7/12/95	Primary Grid (Perimeter)
ECC-B12 BSL	B12	2-4	7/12/95	7/13/95	Primary Grid (Interior)
ECC-B12 CSL	B12	4-6	7/12/95	7/13/95	Primary Grid (Interior)

TABLE 3-2

**ENVIRO-CHEM SUPERFUND SITE
CENTRAL SUPPORT ZONE INVESTIGATION REPORT
SOIL SAMPLE INFORMATION SUMMARY
LABORATORY VOC TESTING**

Sample Number	Sample Location		Date		Notes
	Boring	Depth (Ft. BGS)	Sampled	Analyzed	
ECC-B13 BSL	B13	2-4	7/13/95	7/14/95	Tier 1
ECC-B13 DSL	B13	6-8	7/13/95	7/14/95	Tier 1
ECC-B14 BSL	B14	2-4	7/13/95	7/14/95	Tier 1
ECC-B14 DSL	B14	6-8	7/13/95	7/14/95	Tier 1
ECC-B15 ASL	B15	0-2	7/13/95	7/14/95	Tier 1
ECC-B15 ESL	B15	8-10	7/13/95	7/14/95	Tier 1
ECC-B16 ASL	B16	0-2	7/13/95	7/14/95	Tier 1
ECC-B16 DSL	B16	6-8	7/13/95	7/14/95	Tier 1
B01 DUP	B1	8-10	7/11/95	7/12/95	Duplicate of ECC-B01 ESL
ECC DUP 2	B6	8-10	7/12/95	7/13/95	Duplicate of ECC-B06 ESL
ECC DUP 3	B12	4-6	7/12/95	7/13/95	Duplicate of ECC-B12 CSL
ECC DUP 4	B16	6-8	7/13/95	7/14/95	Duplicate of ECC-B16 DSL

**Enviro-Chem Superfund Site
Central Support Zone Investigation**

TABLE 3-3
Soil VOC Analyses

SAMPLE NUMBER			ECC-B01ASL		ECC-B01DUP		ECC-B01ESL		ECC-B02ASL		ECC-B02ESL		ECC-B03CSL		ECC-B03DSL	
LABORATORY ID			950477-09		950477-11		950477-01		950480-01		950480-02		950480-03		950480-04	
ANALYTES	CRQL	MDL/DL														
Chloromethane	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Bromomethane	10	2	11	UJ	12	UJ	12	U	110	UJ	11	UJ	1500	U	1400	U
Vinyl Chloride	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Chloroethane	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Methylene Chloride	10	2	17	U	14	U	17	U	110	U	11	U	1500	UJ	1400	UJ
Trichlorofluoromethane	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Acetone	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Carbon Disulfide	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
1,1-Dichloroethene	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
1,1-Dichloroethane	10	2	11	U	12	U	12	U	50	J	11	U	190	J	240	J
1,2-Dichloroethene (total)	10	2	11	U	12	U	12	U	110		6	J	5800		7100	
Chloroform	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
1,2-Dichloroethane	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
2-Butanone	10	2	11	U	6	J	13		110	U	33		1500		2300	
1,1,1-Trichloroethane	10	2	11	U	12	U	12	U	110	U	11	U	470	J	1500	
Carbon Tetrachloride	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Bromodichloromethane	10	2	11	U	12	U	12	UJ	110	U	11	U	1500	U	1400	U
1,2-Dichloropropane	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
cis-1,3-Dichloropropene	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Trichloroethene	10	2	11	U	12	U	2	J	250		11	U	1500	U	1300	J
Dibromochloromethane	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
1,1,2-Trichloroethane	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Benzene	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
trans-1,3-Dichloropropene	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Bromoform	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
4-Methyl-2-Pentanone	10	2	11	U	12	U	12	U	110	UJ	11	UJ	1500	U	1400	U
2-Hexanone	10	2	11	U	12	U	12	U	110	UJ	11	UJ	1500	U	1400	U
Tetrachloroethene	10	2	11	U	12	U	12	U	1600		12		160	J	1600	
1,1,2,2-Tetrachloroethane	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Toluene	10	2	11	U	12	U	12	U	810		2	J	4700		9200	
Chlorobenzene	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Ethylbenzene	10	2	11	U	12	U	12	U	410		11	U	2200		4400	
Styrene	10	2	11	U	12	U	12	U	110	U	11	U	1500	U	1400	U
Total Xylenes	10	2	11	U	12	U	12	U	1900		11	U	11000		22000	
1,2-Dichlorobenzene	10	1	11	U	12	U	12	U	680		1	J	3700		8000	

DILUTION FACTOR	1	1	1	10	1	125	125
% SOLIDS	88	84	82	94	90	86	87

NOTE: Values adjusted based on data validation.

**Enviro-Chem Superfund Site
Central Support Zone Investigation**

TABLE 3-3
Soil VOC Analyses

SAMPLE NUMBER	ECC-B04CSL		ECC-B04ESL		ECC-B05BSL		ECC-B05CSL		ECC-B06CSL		ECC-B06ESL		ECC-B07CSL		ECC-B07ESL	
LABORATORY ID	950477-01		950477-02		950480-05		950480-06		950480-07		950480-08		950477-03		950477-04RE	
ANALYTES																
Chloromethane	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
Bromomethane	11	U	11	U	2700	U	2800	U	110	UJ	11	UJ	12	U	11	U
Vinyl Chloride	11	UJ	11	U	2700	U	2800	U	110	U	11	U	12	U	40	
Chloroethane	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
Methylene Chloride	11	U	20	UJ	2700	UJ	2800	UJ	110	U	11	U	30	UJ	40	UJ
Trichlorofluoromethane	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	1	J
Acetone	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
Carbon Disulfide	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
1,1-Dichloroethene	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
1,1-Dichloroethane	11	U	11	U	2700	U	2800	U	170		6	J	12	U	39	
1,2-Dichloroethene (total)	11	U	11	U	1700	J	510	J	2300	E	110	J	12	U	160	
Chloroform	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
1,2-Dichloroethane	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
2-Butanone	6	J	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
1,1,1-Trichloroethane	11	U	11	U	620	J	2000	J	110	U	11	U	12	U	11	U
Carbon Tetrachloride	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
Bromodichloromethane	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
1,2-Dichloropropane	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
cis-1,3-Dichloropropene	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
Trichloroethene	11	U	11	U	570	J	910	J	47	J	2	J	12	U	3	J
Dibromochloromethane	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
1,1,2-Trichloroethane	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
Benzene	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	4	J
trans-1,3-Dichloropropene	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
Bromoform	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	U
4-Methyl-2-Pentanone	11	UJ	11	U	2700	U	2800	U	110	U	11	UJ	12	U	11	UJ
2-Hexanone	11	UJ	11	UJ	2700	U	2300	J	110	U	11	UJ	12	UJ	11	UJ
Tetrachloroethene	11	U	11	U	28000		33000		70	J	2	J	12	U	11	UJ
1,1,2,2-Tetrachloroethane	11	U	11	U	2700	U	770	J	110	U	11	U	12	U	11	UJ
Toluene	2	J	11	U	940	J	410	J	750		5	J	12	U	11	UJ
Chlorobenzene	11	U	11	U	2700	U	2800	U	110	U	11	U	12	U	11	UJ
Ethylbenzene	11	U	11	U	2700	U	2800	U	1400		5	J	12	U	11	UJ
Styrene	11	U	11	U	2700	U	410	J	110	U	11	U	12	U	11	UJ
Total Xylenes	11	U	11	U	980	J	990	J	2100		7	J	12	U	11	UJ
1,2-Dichlorobenzene	11	U	11	U	400	J	2800	U	1400		18		12	U	11	UJ
DILUTION FACTOR	1		1		250		250		10		1		1		1	
% SOLIDS	88		88		91		90		88		89		81		89	

NOTE: Values adjusted based on data validat

**Enviro-Chem Superfund Site
Central Support Zone Investigation**

TABLE 3-3
Soil VOC Analyses

SAMPLE NUMBER	ECC-B08CSL		ECC-B08DSL		ECC-B08DSL DL		ECC-B09ASL		ECC-B09DSL		ECC-B09DSL RE		ECC-B10CSL		ECC-B10ESL	
LABORATORY ID	950480-09		950480-10		950480-10DL		950480-11		950480-12		950480-12RE		950477-05		950477-06	
ANALYTES																
Chloromethane	130	U	12	UJ	11	DJ	54	U	11	U	57	U	13	U	1400	U
Bromomethane	130	UJ	12	UJ	14	BDJ	54	U	11	UJ	57	U	13	UJ	1400	U
Vinyl Chloride	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
Chloroethane	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
Methylene Chloride	130	U	12	UJ	56	BDJ	54	UJ	11	U	35	BJ	53	UJ	1400	UJ
Trichlorofluoromethane	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
Acetone	130	U	12	UJ	37	BDJ	54	U	11	U	57	U	13	U	1400	U
Carbon Disulfide	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
1,1-Dichloroethene	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
1,1-Dichloroethane	130	U	2	J	62	U	54	U	11	U	57	U	13	U	1400	U
1,2-Dichloroethene (total)	1500		770	J	770	D	33	J	25		57	U	13	U	3300	
Chloroform	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
1,2-Dichloroethane	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
2-Butanone	130	U	12	UJ	62	U	54	U	18		57	U	23		1000	J
1,1,1-Trichloroethane	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
Carbon Tetrachloride	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
Bromodichloromethane	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
1,2-Dichloropropane	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
cis-1,3-Dichloropropene	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
Trichloroethene	910		440	J	440	D	56		24		57	U	9	J	1400	U
Dibromochloromethane	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
1,1,2-Trichloroethane	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
Benzene	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
trans-1,3-Dichloropropene	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
Bromoform	130	U	12	UJ	62	U	54	U	11	U	57	U	13	U	1400	U
4-Methyl-2-Pentanone	130	UJ	12	UJ	62	U	54	U	9	J	57	U	13	U	1400	U
2-Hexanone	130	UJ	12	UJ	62	U	54	UJ	11	UJ	57	U	13	U	1400	U
Tetrachloroethene	130	U	3	J	62	U	75		11	UJ	57	U	13	U	1400	U
1,1,2,2-Tetrachloroethane	130	U	12	UJ	62	U	54	U	11	UJ	57	U	13	U	1400	U
Toluene	130	U	1	J	62	U	40	J	39	J	23	J	2	J	1400	U
Chlorobenzene	130	U	12	UJ	62	U	54	U	11	UJ	57	U	18	J	1400	U
Ethylbenzene	130	U	12	UJ	62	U	44	J	16	J	57	U	13	U	1400	U
Styrene	130	U	12	UJ	62	U	54	U	11	UJ	57	U	13	U	1400	U
Total Xylenes	130	U	12	UJ	62	U	220	J	81	J	69		8	J	1400	U
1,2-Dichlorobenzene	130	U	12	UJ	62	U	54	U	11	UJ	57	U	24		1400	U
DILUTION FACTOR	10		1		5		5		1		5		1		1	
% SOLIDS	79		81		81		92		88		88		78		89	

NOTE: Values adjusted based on data validat

**Enviro-Chem Superfund Site
Central Support Zone Investigation**

TABLE 3-3
Soil VOC Analyses

SAMPLE NUMBER	ECC-B11CSL		ECC-B11DSL		ECC-B12BSL		ECC-B12BSLDL		ECC-B12CSL		ECC-DUP2		ECC-DUP2DL		ECC-DUP3	
LABORATORY ID	950477-07		950477-08		950480-13		950480-13DL		950480-14		950480-15		950480-15DL		950480-18	
ANALYTES																
Chloromethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
Bromomethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	UJ	56	U	1400	U
Vinyl Chloride	1500	U	1400	U	1900	U	3700	U	1400	U	8	J	56	U	1400	U
Chloroethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
Methylene Chloride	1500	UJ	1400	UJ	3400	B	2000	UJ	1400	UJ	11	U	30	BDJ	1400	UJ
Trichlorofluoromethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
Acetone	1500	U	1400	U	22000	B	1900	U	1400	U	11	U	56	U	1400	U
Carbon Disulfide	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
1,1-Dichloroethene	1500	U	1400	U	210	J	3700	U	1400	U	11	U	56	U	1400	U
1,1-Dichloroethane	1500	U	1400	U	1900	U	3700	U	1400	U	22		56	U	1400	U
1,2-Dichloroethene (total)	800	J	1300	J	10000		10000	D	800	J	400	J	290	D	1100	J
Chloroform	1500	U	1400	U	370	J	3700	U	1400	U	11	U	56	U	1400	U
1,2-Dichloroethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
2-Butanone	1500	U	1400	U	3800	B	5100		1400	U	11	U	56	U	1400	U
1,1,1-Trichloroethane	570	J	1100	J	2200		2100	DJ	1400	U	1	J	56	U	1400	U
Carbon Tetrachloride	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	UJ
Bromodichloromethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
1,2-Dichloropropane	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
cis-1,3-Dichloropropene	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
Trichloroethene	3100		4600		27000		27000	D	220	J	5	J	56	U	180	J
Dibromochloromethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
1,1,2-Trichloroethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
Benzene	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
trans-1,3-Dichloropropene	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
Bromoform	1500	U	1400	U	1900	U	3700	U	1400	U	11	U	56	U	1400	U
4-Methyl-2-Pentanone	1500	U	1400	U	1400	J	3700	U	880	J	11	UJ	56	U	1100	J
2-Hexanone	1500	U	1400	U	1900	U	3700	U	1400	U	11	UJ	56	U	1400	U
Tetrachloroethene	1500	U	1400	U	3200		3300	DJ	1400	U	4	J	56	U	1400	U
1,1,2,2-Tetrachloroethane	1500	U	1400	U	1900	U	3700	U	1400	U	11	UJ	56	U	1400	U
Toluene	1500	U	1400	U	54000	E	54000		10000	J	13	J	56	U	17000	J
Chlorobenzene	1500	U	1400	U	280	J	3700	U	1400	U	11	UJ	56	U	1400	U
Ethylbenzene	1500	U	1400	U	3800		3600	DJ	190	J	7	J	56	U	350	J
Styrene	1500	U	1400	U	1900	U	3700	U	1400	U	11	UJ	56	U	1400	U
Total Xylenes	1500	U	1400	U	14000		13000	D	880	J	11	J	56	U	1200	J
1,2-Dichlorobenzene	1500	U	1400	U	2200		1900	DJ	1400	U	6	J	56	U	1400	U
DILUTION FACTOR	1		1		125		250		125		1		5		125	
% SOLIDS	84		91		67		67		88		89		89		89	

NOTE: Values adjusted based on data validat

**Enviro-Chem Supertuna Site
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**TABLE 3-3
Soil VOC Analyses**

STATION ID:					ECC-B15A		ECC-B15E		ECC-B16A		ECC-B16D		ECC-B13B		ECC-B13D		ECC-B14B		ECC-B14D		ECC-DUP04	
LABORATORY ID:					950487-01		950487-02		950487-03		950487-04		950487-05		950487-06		950487-07		950487-08		950487-09	
ANALYTES			CRQL	MDL/IDL																		
Chloromethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Bromomethane	10	2	11	UJ	13	UJ	11	UJ	13	UJ	56	UJ	12	UJ	25	UJ	13	UJ	13	UJ		
Vinyl Chloride	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	17	NJ	13	U		
Chloroethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Methylene Chloride	10	2	11	U	13	U	11	U	13	U	56	U	25	U	25	U	13	U	57	UJ		
Trichlorofluoromethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Acetone	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Carbon Disulfide	10	2	22		13	U	11	U	13	U	7	J	12	U	25	U	7	J	13	U		
1,1-Dichloroethene	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
1,1-Dichloroethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	42		21		13	U		
1,2-Dichloroethene (total)	10	2	11	U	3	J	11	U	13	U	6	J	14		350		220		13	U		
Chloroform	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
1,2-Dichloroethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
2-Butanone	10	2	37		13	U	11	U	67		56	U	26		31	J	57	J	47			
1,1,1-Trichloroethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	6	J	13	U	13	U		
Carbon Tetrachloride	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Bromodichloromethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
1,2-Dichloropropane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
cis-1,3-Dichloropropene	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Trichloroethene	10	2	11	U	2	J	11	U	13	U	56	U	12	U	34		3	J	13	U		
Dibromochloromethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
1,1,2-Trichloroethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Benzene	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
trans-1,3-Dichloropropene	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Bromoform	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
4-Methyl-2-Pentanone	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
2-Hexanone	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Tetrachloroethene	10	2	11	U	13	U	3	J	13	U	56	U	12	U	25	U	13	U	13	U		
1,1,2,2-Tetrachloroethane	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Toluene	10	2	2	J	13	U	1	J	1	J	10	J	12	U	25	U	2	J	1	J		
Chlorobenzene	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Ethylbenzene	10	2	2	J	13	U	11	U	13	U	13	J	12	U	25	U	3	J	13	U		
Styrene	10	2	11	U	13	U	11	U	13	U	56	U	12	U	25	U	13	U	13	U		
Total Xylenes	10	2	3	J	13	U	11	U	13	U	120		12	U	25	U	9	J	13	U		
1,2-Dichlorobenzene	10	1	11	U	13	U	11	U	13	U	56	U	12	U	25	U	4	J	13	U		
DILUTION FACTOR					1		1		1		1		5		1		2		1		1	
% SOLIDS					87		79		88		77		90		80		80		79		75	

NOTE: Values adjusted based on data validation.

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**TABLE 3-4
Aqueous VOC Analyses**

STATION ID:				ECC_RINSATE		ECC-DS_WATER	
LABORATORY ID:				950480-16		950480-17	
ANALYTES	CRQL	MDL/IDL					
Chloromethane	10	2	10	U	10	U	
Bromomethane	10	2	10	U	10	U	
Vinyl Chloride	10	2	10	U	10	U	
Chloroethane	10	2	10	U	10	U	
Methylene Chloride	10	2	8	J	7	J	
Trichlorofluoromethane	10	2	10	U	10	U	
Acetone	10	2	10	UJ	10	UJ	
Carbon Disulfide	10	2	10	U	10	U	
1,1-Dichloroethene	10	2	10	U	10	U	
1,1-Dichloroethane	10	2	10	U	10	U	
1,2-Dichloroethene (total)	10	2	10	U	10	U	
Chloroform	10	2	10	U	10	U	
1,2-Dichloroethane	10	2	10	U	10	U	
2-Butanone	10	2	10	UJ	10	UJ	
1,1,1-Trichloroethane	10	2	10	U	10	U	
Carbon Tetrachloride	10	2	10	U	10	U	
Bromodichloromethane	10	2	10	U	10	U	
1,2-Dichloropropane	10	2	10	U	10	U	
cis-1,3-Dichloropropene	10	2	10	U	10	U	
Trichloroethene	10	2	10	U	10	U	
Dibromochloromethane	10	2	10	U	10	U	
1,1,2-Trichloroethane	10	2	10	U	10	U	
Benzene	10	2	10	UJ	10	UJ	
trans-1,3-Dichloropropene	10	2	10	U	10	U	
Bromoform	10	2	10	UJ	10	UJ	
4-Methyl-2-Pentanone	10	2	10	U	10	U	
2-Hexanone	10	2	10	UJ	10	UJ	
Tetrachloroethene	10	2	10	U	10	U	
1,1,2,2-Tetrachloroethane	10	2	10	U	10	U	
Toluene	10	2	10	UJ	10	UJ	
Chlorobenzene	10	2	10	UJ	10	UJ	
Ethylbenzene	10	2	10	UJ	10	UJ	
Styrene	10	2	10	UJ	10	UJ	
Total Xylenes	10	2	10	UJ	10	UJ	
1,2-Dichlorobenzene	10	1	10	UJ	10	UJ	
DILUTION FACTOR			1		1		

NOTE: Values adjusted based on data validation.

GLOSSARY OF DATA QUALIFIER CODES

CODES RELATING TO IDENTIFICATION

(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Presumptively present.

CODES RELATED TO QUANTITATION

(can be used for positive results and sample quantitation limits)

J = Analyte present. Reported value may not be accurate or precise.

UJ = Not detected. Quantitation limit may be inaccurate or imprecise.

NJ = Presumptively present at an estimated concentration.